VOL. XVII. NEW YORK—THURSDAY, SEPTEMBER 26, 1907—CHICAGO No. 13

THE AUTOMOBILE

Auto "Heavy Weights" by the French Army Being Tried

PARIS, Sept. 17.—"Heavy-Weights," as the French designate commercial vehicles, are again playing an important part in the Southwest army maneuvers, and attracting considerably more public interest than ever before. The army possesses its own fleet of eight vehicles bought after long competitive tests from De Dion Bouton, Mors, Turgan, Darracq-Serpollet, Gillet-Forest, and Delahaye. In addition seventeen firms have responded to the invitation of the army authorities with 32 machines: Berliet furnishing six, Dietrich two, De Dion, Panhard, and Mors two each. The eight machines owned by the government are naturally operated by picked men from the army automobile corps; the machines lent for the maneuvers are driven, as far as possible, by mechanics from the maker's factory, who have thrown off the blue overalls to spend twenty-eight days under the flag. Such an arrangement is pleasing to the men, who naturally prefer a continuance of factory duties—though under military rule—to handling a rifle and performing fatigue duty, insures reasonable care of the vehicle, and gives the best service to the army.

Excepting the Darracq-Serpollet steamers, all the vehicles are operated by internal-combustion motors of the four-cylinder type, engine carried forward, and are fitted with bodies suitable for the transportation of provisions. One Mors has a special tank body for carrying water to distant camps and along with the troops when under marching orders. Dietrich has a six-wheel chain-driven wagon which attracts considerable attention. As indicative of the greater interest now being taken in commercial vehicles in France, it is interesting to note that a large number of engineers from the leading factories are following the troops in order to closely observe the performance of the automobiles.

No better test of automobile transport could be had than these three weeks under military rule. The machines are working in teams: in one are grouped the slower vehicles with metal-shod wheels, carrying three to five-ton loads; several more rapid teams take the lighter loads up to three tons. At 5 o'clock each morning the teams are loaded up, provisions and water are carried out to the troops in the field, and the return journey is made empty. Order of march is the usual military one by convoys at a fixed speed of seven to ten miles an hour, according to the order of the officer in charge.

UNLOADING PROVISIONS FOR THE TROOPS.

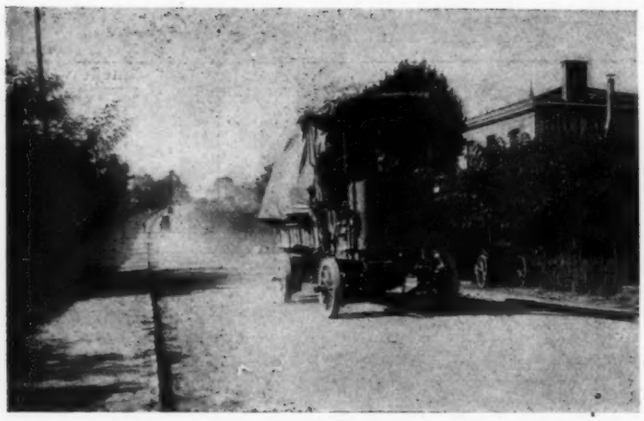
This year the service has been performed in a remarkably regular and efficient manner, the automobile convoys being equal to the horse-drawn teams in reliability, with the enormous advantage of greater power and speed. One day per week each wagon is accorded leave of absence for adjustments or repairs. These latter, however, have been very rare, Purrey's big factory at Bordeaux, placed at the disposal of the army corps, not often being called upon to render help.

One of the minor difficulties in the operation of the wagons is that of speed. Each driver, confident in the ability of his charge, is anxious to push forward at a higher rate of travel than prescribed by the officer in charge. Breakdowns, whenever they have occurred, have been traceable in most cases to the endeavor of the driver to obtain the maximum speed from his motor.

Road surfaces around Bordeaux are good, though hilly, but in following after troops on the march it is not always possible to stick to national highways. Frequent excursions over rough lanes and at times across country provide strenuous tests for men and machines.

Last year automobile vehicles were employed exclusively in transporting drinking water to the army corps engaged in the maneuvers at Langres. The task was not one of the easiest, for the district in which the troops were operating was entirely destitute of water, and every drop had to be carried in the special tanks fitted to the automobiles. During this severe test, where the breakdown of a single vehicle would have caused considerable inconvenience to officers and men, the automobiles gave entire satisfaction, all journeys being made regularly and without accident.

When the southwest maneuvers were being planned, it was decided by the Etat-Major to employ automobiles exclusively for carrying provisions from the army base at Bordeaux to the two corps in the field. The experiment was not a rash decision, for the Army Service Corps had during previous years watched closely the work done by automobiles in army work, and in addition had followed with the closest attention all the commercial vehicle competitions held by the French club. The army itself was but meagerly equipped for this work with a Delahaye, a De Dion Bouton and a Gillet-Forest bought at



ONE OF SIX BERLIETS IN ARMY SERVICE.

DIETRICH SIX-WHEELER CAN HANDLE BIG LOADS.

the end of the 1906 military competition, and two Darracq-Serpollets, a De Dion Bouton, a Mors and a Turgan obtained at the close of this year's commercial vehicle competition. These eight were handled by military automobilists taken from the first company of artillery workmen. With the 32 wagons of all kinds supplied by private firms, a very important fleet of automobiles for transport service was obtained. An indemnity of about 17 cents per horsepower and per day is paid by the Government for each vehicle. Fuel, oil and grease are provided by the army authorities.

At the commencement of the maneuvers the forty vehicles were divided into two classes. At daybreak of the first day one division set out from Bordeaux loaded with provisions to be delivered at the camps indicated, somewhere within a radius of seventy miles. Traveling in convoy at a speed of from seven to ten miles an hour, the provisions could not be discharged before two or three o'clock in the afternoon. Their mission for the day accomplished, the convoy would reach some town or village about twenty miles nearer Bordeaux, their base, and pass the night there. The next morning an early start would be made for Bordeaux, that city being entered about noon. After the trucks had been loaded up, each one would proceed to the military garage, where the drivers would carefully examine their vehicles in order to be in perfect condition for an early morning start the next day. An officer in charge of this garage had strict orders not to allow any vehicle to leave unless it was apparently in a condition to accomplish its journey.

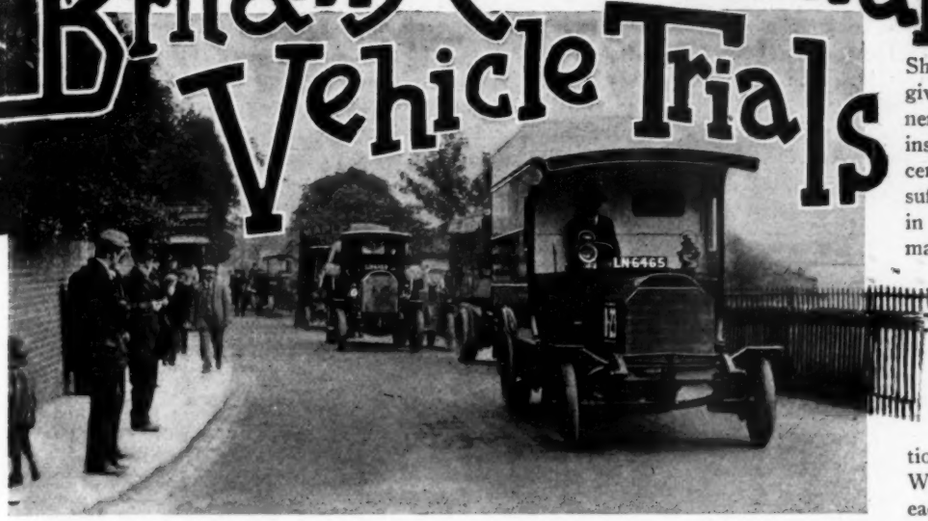
This two-day program, repeated throughout the grand maneuvers, brought twenty wagonloads of provisions to the fighting line each day. The two divisions were subdivided into classes, according to the average speed they were able to maintain, and an officer was placed in charge of each of these.

Although a circle of seventy miles was fixed as the limit of action for the automobile wagons, as the troops moved away from their base this distance was frequently increased, some of the vehicles covering 160 miles in one day. On several occasions, too, the roads to be traversed to reach camp were far removed from the standard of *routes nationales.* Nevertheless, the work was done in an excellent manner, the provision wagons undertaking the double duty of carrying back the wounded—more frequently those suffering from minor ailments—on their supposedly empty return journeys. Two only of the forty automobile wagons had to be withdrawn as the result of mechanical troubles before the end of the maneuvers; not a single case of late arrival has been reported, nor have the troops ever been held back because of a slow working Army Service Corps.

Apart from the "Heavy Brigade," reservists called to the regiment have in a score of cases brought their automobile and placed it at the disposal of staff officers for twenty-eight days. Captain Genty, known to the public as De la Touloubre, the racer, transports a number of staff officers from point to point in a Panhard; General Picquart uses a Dietrich, with a Berleit following in attendance; Lieutenant Taffoureau, in charge of one of the convoys, follows his vehicles in a 15-horsepower De Dion, lent for that purpose; Lieutenant Petitet has a 60-horsepower Aries, also loaned, with which it is possible to run up and down the line of march. In addition to "heavy weights" and touring machines, a number of motorcycles are employed, carrying orders from headquarters to distant points. It is quite possible that motorcycle brigades will supplant the existing cycling corps.

WAITING FOR ORDERS—A ROADSIDE SCENE DURING FRENCH SOUTHWEST ARMY MANEUVERS.

Britain's Commercial Vehicle Trials



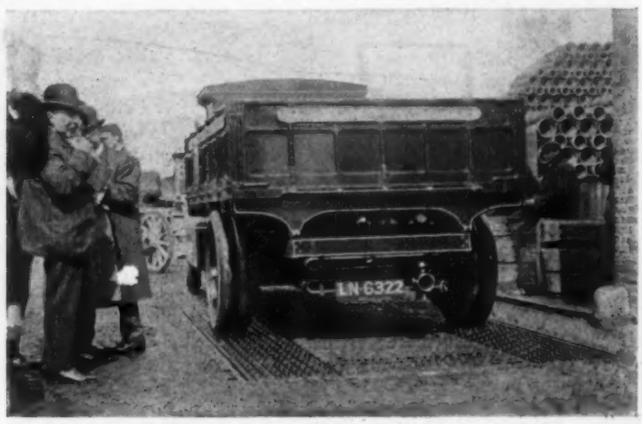
COMMERCIALITIES LEAVING CHISWICK ON FIVE WEEKS' EXHIBITION TOUR AND TEST.

LONDON, Sept. 16.—British advocates of commercial motor vehicles have been rewarded for their long wait by a competition and demonstration of such magnitude that good results are bound to accrue to the industry as a whole. A joint committee from the Royal Automobile Club, the Society of Motor Manufacturers and Traders and the Commercial Motor Users' Association drew up the regulations, the carrying out of which are entirely in the hands of the national club. Load carrying capacity has been taken as the basis of classification, seven classes being provided, capable of taking loads from 1,120 pounds to 6 1-2 tons. No attempt is made to group vehicles into mechanical classes, gasoline, steam, and gasoline-electric running together on a commercial basis of load carrying power.

Of the 62 vehicles which entered, no fewer than 56 started from Thorneycroft's yard at Chiswick, near London, on September 8 for their five weeks' tour. With the exception of the 5 1-2-ton class, which only obtained one entrant, who had to be transferred to the higher category, each divison was well represented, the three-ton class being the strongest. From Chiswick the run will be along the Thames valley to Reading, then westward to Bristol, northwards to Gloucester, Worcester, Birmingham, Stafford, and Liverpool; the busy manufacturing district through Lancashire and Yorkshire will be traversed in almost every direction and a southward run to London made by a more central route. A feature of the arrangement is that the different classes will take different routes, but will meet at one given point each evening. This has been necessary owing to the wide range of vehicles entered and their consequent varying speed. Eight one-day exhibitions have been arranged at Bristol, Birmingham, Liverpool, Manchester, Leeds, Sheffield, Nottingham and Bedford, thus giving business men of the most prominent towns traversed an opportunity of inspecting and obtaining information concerning the vehicles. The daily runs are sufficiently strenuous to be of some value in demonstrating the relative value of the machines engaged, but the event is probably more of a traveling exhibition than a competition. The routes have been laid out to give participants the greatest amount of exhibition in the shortest time, and in this respect England, with its closely adjoining towns, is an excellent field of operation. Expert salesmen accompany the tour. With entries limited to two per firm for each class, it is a valuable proof of the wide extension of the commercial vehicle in England that such a large number of competitors should have been obtained. Further, passenger vehicles are barred, thus keeping out a few firms having only 'bus bodies on their chassis. British firms have the largest representation, the list including practically every home factory of importance; France has eleven vehicles sent by Turgan, De Dion Bouton, Unic, Darracq, and Darracq-Serpollet. Germany's representatives are seven Milnes-Daimler vehicles. Italy contributes a couple of Fiat five-ton trucks. With the exception of Darracq-Serpollet, all the foreigners send internal combustion motors. The Britisher's love for steam appears to be losing ground slightly, as internal combustion motors have become more and more perfect. In the 5 1-2-ton class steam and gasoline are numerically equal; for all vehicles carrying a lower load gasoline is unmistakably supreme. The only structural features in which there is marked uniformity among the competing vehicles is in final drive and mode of ignition. Fifty per cent. have double chain drive; seven per cent. employ the cardan, the remainder comprising single chain, worm gear, and internal gears of special types. Low-tension magnetos are employed in the proportion of 45 per cent., high-tension magnetos are used on 28.5 per cent. of the motors, and storage batteries in the proportion of 26.5 per cent. Thirty per cent. have batteries as a standby.

Road regulations call for an average speed varying from twenty to five miles an hour in the different classes. The load carried primarily determines the running schedule, but tires also have their influence. Thus for one class calling for twelve miles

EDITORIAL SANCTUM ON A MILNES-DAIMLER CHASSIS.



TAKING THE WEIGHT OF A THREE-TONNER.

an hour a reduction is made to eight miles when metal shod wheels are used; the five-mile-an-hour class has to furnish twelve miles if soft or elastic material is used in place of metal shod wheels. During the five weeks the fastest vehicles will travel 1,540 miles, being an average of about seventy a day. Those limited by legal restrictions to twelve miles an hour will cover 1,210, 1,100 or 880, according to the load carried. The heavy steamers with trailers attached will cover less than 700 miles, police regulations forbidding them to move faster than five miles an hour. Speeding is forbidden under penalization. An observer appointed by a rival firm is carried on each competing vehicle, with instructions to record all incidents of the road. Arrangements are made by the club for a supply of fuel at all stages along the route. Covered parking stations being impossible at every point, competitors must carry their own tarpaulins or whatever protection they may consider necessary for open-air storage. In determining awards the judges will take into consideration accessibility, adequacy of platform area and convenience of loading, adhesion (loaded and light), ease of manipulation, finish and workmanship, freedom from nuisance to public, brakes, condition after trial, cost per ton-mile, hill climbing, maneuvering, quiet running, repairs and replacements. One man only is allowed on the vehicles in addition to the observer, except in the case of steamers, where a stoker is allowed. To encourage punctuality a special prize of $20 is offered to the driver most regular in arriving and leaving control according to his official schedule. At the end of the tour the vehicles will be taken to the large Vanguard Motorbus Company's garage in London.

U. S. GOVERNMENT TESTS ALCOHOL AS FUEL

WASHINGTON, D. C., Sept. 23.—An exhaustive report on tests of internal-combustion engines on alcohol fuel has just been completed for the Department of Agriculture by Prof. C. E. Lucke, of Columbia University, and S. M. Woodward, one of the Department's experts. Recently in this country a widespread interest has developed in the possibilities of alcohol as a fuel. The question of a possible substitute for the petroleum fuels will become of increasing importance as time goes on. The supply of crude oil to be obtained in the United States must ultimately diminish, and the history of the past indicates that a constant increase in price of kerosene and gasoline may reasonably be expected.

The tests made by Prof. Lucke and Mr. Woodward were carried out in New York City, chiefly in the mechanical engineering laboratories of Columbia University, between October 1, 1906, and February 1, 1907. Most of the engines used were loaned by their makers for the purpose of the tests. Each of the eight engines was run on alcohol as well as gasoline or kerosene for which it was designed. The engines used were: 15-horsepower, 2-cylinder, vertical, 4-cycle gasoline engine; 6-horsepower, horizontal, 4-cycle gasoline engine; 6-horsepower, horizontal, 4-cycle gasoline engine; 6-horsepower, vertical, 4-cycle gasoline engine; 6-horsepower, horizontal, 2-cycle kerosene engine; 40-horsepower, 4-cylinder, automobile gasoline engine; 40-horsepower, 4-cylinder automobile gasoline engine; 2-horsepower, vertical, 2-cycle marine gasoline engine. The following general conclusions were drawn as the result of the investigations:

Any gasoline engine of the ordinary types can be run on alcohol fuel without any material change in the construction of the engine. The only difficulties likely to be encountered are in starting and in supplying a sufficient quantity of fuel, a quantity which must be considerably greater than the quantity of gasoline required. When an engine is run on alcohol its operation is more noiseless than when run on gasoline, its maximum power is usually materially higher than it is on gasoline, and there is no danger of any injurious hammering with alcohol such as occurs with gasoline.

For automobile air-cooled engines alcohol seems to be especially adapted as a fuel, since the temperature of the engine cylinder may rise much higher before auto-ignition takes place than is possible with gasoline fuel; and if auto-ignition of the alcohol fuel does occur no injurious hammering can result. The consumption of fuel in pounds per brake horsepower, whether the fuel is gasoline or alcohol, depends chiefly upon the load at which the engine is being run and upon the setting of the fuel supply valve. It is easily possible for the fuel consumption per horsepower hour to be increased to double the best value, either by running the engine on a load below its full power or by a poor setting of the fuel supply valve.

These investigations also showed that the fuel consumption was affected by the time of ignition, by the speed, and by the initial compression of the fuel charge. No tests were made to determine the maximum possible change in fuel consumption that could be produced by changing the time of ignition, but when near the best fuel consumption it was shown to be important to have an early ignition. So far as tested the alcohol fuel consumption was better at low than at high speeds. So far as investigated, increasing the initial compression from 70 to 125 pounds produced only a very slight improvement in the consumption of alcohol. It is probable that for any given engine the fuel consumption is also affected by the quantity and temperature of cooling water used and the nature of the cooling system, by the type of ignition apparatus, by the quantity and quality of lubricating oil, by the temperature and humidity of the atmosphere, and by the initial temperature of the fuel.

EDGE MAKES COMPARATIVE FUEL TESTS

LONDON, Sept. 16.—With a view to testing the capabilities of British fuel for automobiles, S. F. Edge has been making a number of tests recently under the control of the Royal Automobile Club. The most recent of these was a comparative test of gasoline put on the market under the name "Shell" spirit and benzol. With a 40-horsepower Napier, a couple of 200-mile journeys were made from London to Grantham and back, "Shell" spirit being used on the one trip and benzol on the other. No adjustment or alteration was made to the carbureter for the benzol, though it was of much greater specific gravity than the petrol; obviously, some alteration should have been made to get the best results, but even using it under the adverse conditions the result was excellent.

"Shell" spirit gave 19.96 miles to the gallon, and on benzol the mileage was 19.27 miles to the gallon. The weight of the car with four passengers being 3,870 pounds, the test showed that for one ton carried on "Shell" spirit the automobile ran 34.48 ton-miles to the gallon and on benzol 33.303 ton-miles to the gallon. The difference between the two results is really negligible, and had the carbureter been adjusted to benzol the car would probably have run further on that fuel than on "Shell" spirit, the best gasoline procurable.

The comparative tabulated results of the two tests, as certified by the Royal Automobile Club, conditions being identical on each occasion, are as follows:

	Gasoline	Benzol
Ton-miles	345.52	345.52
Ton-miles per gallon	34.48	33.303
Gallons per ton-mile	.0289	.03002

Edge states that he intends later to carry out tests with benzol only, with the carbureter adjusted properly to suit it.

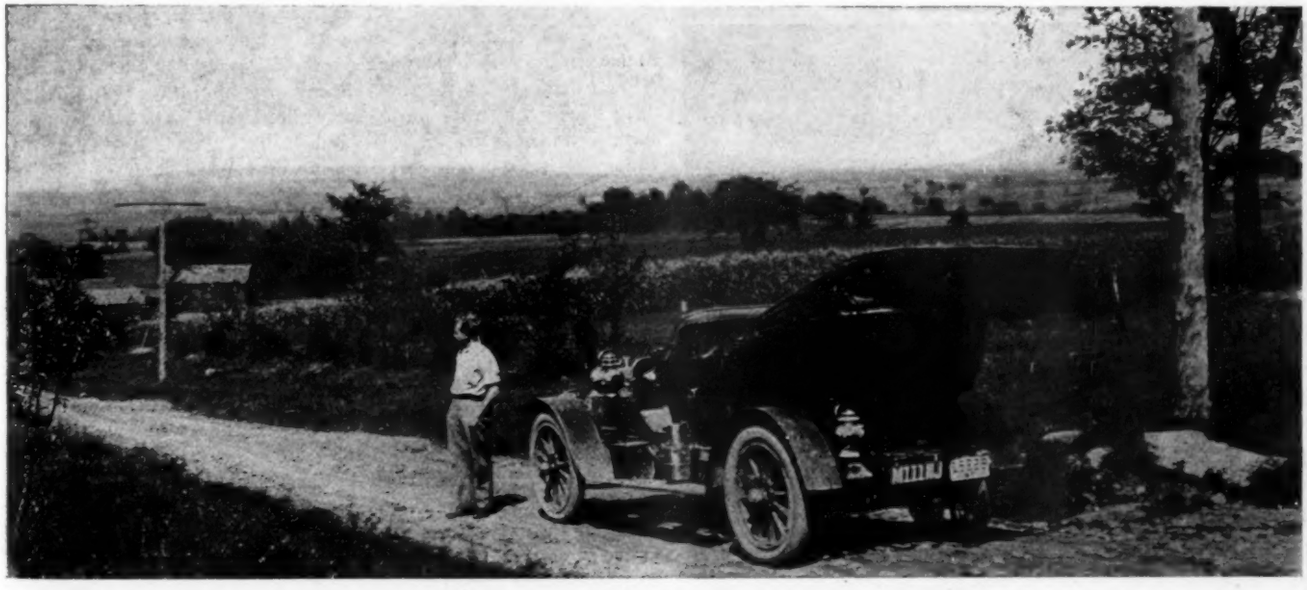
AN AUTO'S ADIRONDACK INVASION.

That there are some places where an automobile cannot travel, goes without saying, but that the number of them is constantly being decreased is also a matter of such common knowledge as hardly to call for comment. The members of the Adirondack League Club are fully convinced that the number has been reduced by one at least, and will no longer regard the 1,300-foot climb on the 20 miles of road separating Forrestport from Lake Honnedaga in the Adirondack mountains as an impossibility. Up to a short time ago the members of the club were in the habit of abandoning their cars at Forrestport in favor of the stage coach which carried them the remaining twenty miles of the journey to the camps along the chain of lakes in the club's 100,000 acre reservation. Lake Honnedaga is 2,300 feet above sea level and 1,300 feet above Forrestport, and there were good reasons for doubting the impossibility of making the trip by automobile, for it had been tried before and the fifteen-mile stretch where there is no road at all, had proved too much for even the best intentions.

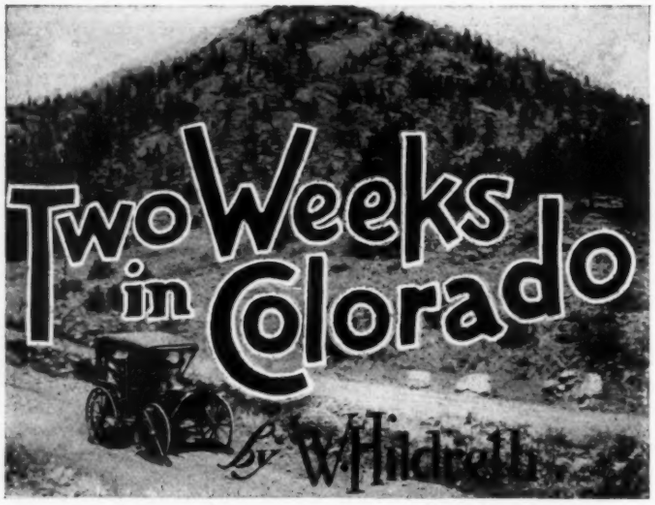
So thoroughly convinced were the club members that the feat could not be accomplished, that they never expected to see an auto make the trip and were not loath to issue a defi, which was promptly accepted by Manager R. D. Garden, of the Harrolds Motor Car Company, and New York representatives of the George N. Pierce Company, of Buffalo, N. Y. Negotiations were concluded through Robert W. Slusser, one of Mr. Garden's salesmen, and a 40-horsepower Pierce-Arrow was sent by boat to Albany and driven over the 120-mile stretch intervening between the capital city and Forrestport. The car was in charge of John Williams—the boyish-looking, quiet little chap who always ornaments the wheel seat of a Pierce every time a car of that make is entered in a competition of any kind in the vicinity of New York, for Williams knows the Pierce from beginning to end; he knows what it can do and, more than that, knows what he can do with it. He is one of those drivers who goes along steadily, minding his own business and without any attempt at grandstand plays along the road for the benefit of a few "rubes" or the discomfiture of the occupants of another car, so that he is always in front at the finish with his car and himself and passengers far cleaner than any other outfit in the competition. His work in the A. A. A. 1,500-mile mud-plugging match last summer was something that came in for considerable comment, so that Mr. Garden was safe in concluding that Williams in a Pierce was a combination that could be relied upon in an emergency.

TOP OF A BAD HILL HALF WAY FROM THE LAKE.

Williams arrived at Forrestport on schedule time, and just to show that a few more or less made no difference, took along some members of the club and Uncle Sam's representative in the person of the mail carrier. Just one hour and thirty-one minutes were required to make the climb, and in their enthusiasm at the successful acvhievement of the hitherto impossible feat, the club members decorated the car with a sign to the effect that it was the first automobile to enter the region. The return trip was made in 1:12, and then the car was sent back and forth over the route several times to demonstrate that it was not a matter of being able to accomplish it once as a herculean effort, but was easily within the capacity of the car. On each occasion the mail carrier and some of the club members were taken along, though the nature of the going, whether up or down, was hardly such as would entitle the trip to be called "joy-riding." Williams was quite certain that there was nothing in the whole two-week road nightmare of the three A. tour that could hold a candle to the Adirondack climb, and was naturally proud of his achievement in succeeding where others had failed.



ON THE LITTLE FALLS AND NEWPORT ROAD, WHERE THE UNDULATING HILLS PRESENT A PICTURESQUE SCENE TO THE TOURIST.



EN ROUTE VIA STAGE ROAD FROM ESTES PARK TO LYONS.

A PARTY of four of us started from Colorado Springs for a two weeks' tour of Colorado in a Holsman surrey. We carried a hundred pounds of luggage and some extra supplies and emergency parts. We found that we needed every pound of our luggage, but did not need the parts, as we did not have a single repair on the whole trip. This is quite remarkable, since we encountered some of the worst roads in the State, as well as some of the best.

We spent two days driving about Colorado Springs, visiting the Garden of the Gods, Cheyenne Canyon, Manitou, etc. The roads around Colorado Springs were delightful and the finest we found on the whole trip. One afternoon we drove to Palmer Lake, twenty-five miles, where we stayed over night. There are a great many hills on this road, and as Palmer Lake is 2,000 feet higher than Colorado Springs, there is a considerable climb all the way. Palmer Lake is a beautiful place and we really regretted that we must make our stay there so brief.

The next morning we drove to Denver, about fifty miles down grade and fine roads. After a ride through some of Denver's beautiful parks we started at noon for Boulder, thirty-five miles. There are a good many hills on this trip, but the roads are excellent, except where we were directed over a short cut the latter half of the way. This proved to be a coal road and was full of chuck holes, which made progress slow and riding anything but enjoyable.

ALONG THE CANYON OF THE BIG THOMPSON RIVER.

Boulder, although one of the oldest, is one of the most up-to-date and attractive of Colorado's smaller cities. The State University, the Chautauqua, and the Battle Creek Sanitarium are among the features of interest.

A night and a forenoon in Boulder and then on to Loveland, thirty-four miles, Saturday afternoon. The road to Loveland passes through some of the finest agricultural lands in the country. Almost every crop is grown here in abundance, owing to the fine system of irrigation and the prevalence of sunshine. Sugar beets are raised in such quantities that beet sugar factories are located about fifteen to twenty miles apart throughout this entire part of the State.

Sunday forenoon we drove to Estes Park over the new automobile stage road, thirty-five miles. This was the most enjoyable and the most picturesque ride on our entire trip. The road follows the cañon of the Big Thompson river for about twenty-five miles. The foaming river and the precipitous cliffs lend an enchantment that at times is not unmixed with awe. There are some steep pitches, but the road as a whole is excellent.

Estes Park is one of the newer of the Colorado pleasure resorts, but is fast becoming one of the most popular in the West.

SIGNS THAT ARE FEARFULLY AND WONDERFULLY MADE.

Its altitude of 7,500 and 8,000 feet insures a cool and invigorating atmosphere, and it is not yet blighted by the depressing effects of too much civilization. The park comprises about 8,000 acres of beautiful valleys, surrounded by pine covered mountains and traversed by streams of water that go dashing down to join the "Big Thompson" that forms the outlet of the park. Perpetual snow is in sight on all sides and "Long's Peak," the king of Colorado peaks and the goal of the more hardy and ambitious mountain climbers, is in full view and easily reached from the park. Our stay here was at the "Rustic," a most attractive inn surrounded by rustic cottages, which are for the accommodation of guests of the hotel only. The view from this place is the best in the park and is one of the finest I have ever seen.

After a few days' sojourn in Estes Park we took the return trail to Denver, which ended our tour. This time we took the shortest route out of the park, which is via the stage road to Lyons. But although this route is shorter than the Loveland route, it is so cut up by the stage and the heavy supply wagons that it took us longer to go down than it did to go up the other way. Part of the Lyons route has been improved by a new road and I understand that more extensive improvements are to be made on this line. However, the Loveland route will continue to be preferred by autoists on account of its grander scenery and its freedom from the heavy traffic which is so hard on mountain roads.

HOW THE A. A. A. IS DOING ITS NATIONAL WORK

WHAT the American Automobile Association is accomplishing for the general good of automobiling was made substantially apparent at the quarterly meeting of the Board of Directors, held at national headquarters, No. 437 Fifth avenue, New York City, Thursday, September 18. The reports of the Legislative, Good Roads, and Touring boards told of much progress and of a kind most helpful to members and the pastime and industry as a whole. Preceded by a session of the executive committee, the full board met with the following present:

President, W. H. Hotchkiss, Automobile Club of Buffalo.
First Vice-President, L. R. Speare, Bay State Automobile Association.
Treasurer, George E. Farrington, Automobile Club of New Jersey.
W. K. Vanderbilt, Jr., Automobile Club of America.
Sidney S. Gorham, Chicago Automobile Club.
A. G. Batchelder, New York Motor Club.
Colgate Hoyt, Automobile Club of America.
Robert P. Hooper, Automobile Club of Germantown.
Paul C. Wolff, Automobile Club of Pittsburg.
Stanford L. Haynes, Automobile Club of Springfield, Mass.
W. H. Chase, Wachusett (Mass.) Automobile Club.
J. H. Edwards, Automobile Club of Hudson Co., N. J.
G. A. Post, North Jersey Automobile Club.
A. R. Pardington, Brooklyn, N. Y.
Frederick H. Elliott, Secretary.

According to the report of Secretary Elliott, the total membership of the association at the present time is 18,550—made up of 16 State associations comprising 109 clubs, 15 clubs unfederated with State associations, and 550 individual members. During the present administration the membership of the association has more than doubled, and the number of affiliated State associations has been trebled. Applications are expected from four recently organized State bodies in the South and West.

Provision was made for a Technical Board to which will be referred all matters of contests of a technical character.

A special committee representative of the various trade interests was appointed to consider the advisability of sanctioning track races in future. This committee, after conferring with the representative national bodies of manufacturers and with the affiliated A. A. A. clubs, will report at the directors' meeting in November. The committee consists of President W. H. Hotchkiss; Jefferson DeMont Thompson, and Ira H. Cobe, of the Racing Board; Charles Clifton, Association of Licensed Automobile Manufacturers; Benjamin Briscoe, American Motor Car Manufacturers' Association; Percy Owen, Importers Automobile Salon.

The directors approved of the position taken by the donor of the Vanderbilt Cup and the Racing Board in deciding to hold no race this year for the cup over public highways unless the course could be properly guarded by troops.

The amendments to the by-laws were adopted, providing for the annual meeting of the Association to be held in November instead of December. The fiscal year was also changed to begin November 1 instead of February 1. There will be quarterly meetings of the Board of Directors hereafter to be held in February, April, September, and November.

The Finance Committee was authorized to audit the annual report of the Treasurer for the current year and to draft a suitable financial policy for the future.

Treasurer Farrington's report showed a balance of $6,602.14 on hand, with other assets available which will increase the total beyond ten thousand dollars. A budget for the next year, most conservatively outlined from the point of assets, showed how the organization need have no apprehensions as to its financial future. Nevertheless, President Hotchkiss enlarged upon the need of a greater revenue if the association is to accomplish quickly the extensive work that has been drafted out.

The invitation from the Springfield Automobile Club to name delegates to attend the Good Roads and Good Laws convention to be held in Springfield, Mass., September 24-25, was accepted, and the following delegates were named: Wm. H. Hotchkiss, L. R. Speare, A. G. Batchelder, Robert F. Hooper, C. T. Terry and F. H. Elliott.

The directors adopted a resolution which was recommended by the Executive Committee of the Racing Board providing that any club, a member of the A. A. A., which associates itself in any way, wholly or partially, with the promotion of a race meet shall become responsible for the delivery of the prizes as stated on the entry blank, and also for the enforcement of the rules of the Racing Board of the A. A. A.

It is proposed to hold a general convention of the A. A. A. during the touring season next year at some central point, with a program including technical contests, etc., the matter being referred to the Executive Committee.

Exhaustive Report of President Hotchkiss.

Complete and exhaustive was the report of President Hotchkiss, a few extracts of which are herewith given:

Legislative Board.—By far the most important work of the Association is committed to this board, and it is fortunate in having an active executive committee and a most efficient chairman, Mr. Terry. It is perhaps proper to say, however, that it has assisted the legislative committees of several of the State associations in bringing about a better condition of motor legislation in their States during the past year. Its work has, however, but been begun, and its activities from this time on will be devoted chiefly to the passage of the Cocks bill, introduced during the closing days of the last session of Congress, and to be reintroduced at the opening of the 60th Congress in December. The whole country is being circularized and congressmen interviewed in favor of this measure. Further examination of the authorities merely emphasizes the contention that such a bill will be constitutional. Once passed, it will for the non-resident tourist do away with the most grievous provisions in many of the State laws, namely, those requiring multiple registration, licenses, and the like. I bespeak for the legislative board the co-operation of every motorist in the campaign for a federal registration bill which is now beginning. No one measure can do more good for the cause.

Touring Board.—The secretary of the Touring Board has, during the summer, been in receipt daily of inquiries as to roads, maps, hotel charges, and the like, and has, as promptly as possible, responded to the same. During this period, he has gathered together much valuable information, which is now being thoroughly subdivided through a filing system, and will be considerably increased during the fall and winter. This branch of the work of such board is, however, yet in its beginnings; indeed, cannot be made very productive on the limited revenues of the Association. Some of us hope that, when these revenues are what they ought to be, the Association can do for its members what other national bodies do abroad. At the same time, it must never be forgotten that foreign national bodies deal not merely with old countries, having a well developed road system, but with relatively small territories; whereas our road system is just beginning to develop, and our territory is practically continental.

Good Roads Board.—The most difficult task in the association is that committed to this board. Indeed, about all it can do is to co-operate with other bodies interested in the same subject. During the past few months such co-operation has not been behind the scenes, but, in the open; the time having, it is thought, been reached when the motorist can, even to boards of supervisors in agricultural territories, come out emphatically for good roads.

Racing Board.—Much has been said in certain quarters of late as to this board and its so-called inefficiency, particularly with regard to the Vanderbilt Cup race this year. Members of the Association who knew anything of the facts discounted the criticisms. To those who did not the following statement is due.

Every reasonable and proper effort was made to have a Vanderbilt Cup race this fall. The donor of the cup and the chairman of the racing board were determined that the race be not held unless the course was policed by troops, and they were undoubtedly right in their position. Representatives of the Association waited upon the President of the United States and asked him to permit

the use of federal troops. This he seemed entirely willing to do, if within his authority, though the gathering of sufficient troops at a central point like New York City would have been at a very considerable expense to the association. The War Department, however, intimated that our appeal should be made to the State, and the Governor of New York was then urged to promise State troops. This he was unwilling to do. An effort was then made to accomplish the same thing in New Jersey, which failed, through no fault of the active officers of this Association. While suggestions were made that, if the race was held in other States, troops could be furnished, they were either so vague in their character, or the proposed courses were so remote from our motor manufacturing centers, that a successful and well policed race seemed out of the question. Hence, the race was given up for this year.

This action of the racing board, captained by its acting chairman, Mr. Pardington, was, in my judgment, not merely wise, but the only action which could properly be taken, and were the sources of the criticisms and the somewhat questionable methods of the critics not understood by the motoring world, I should feel that such criticisms should be discussed here, and not dismissed with the contempt that they deserve.

Comprehensive Efforts of Legislative Board.

An enormous amount of work is being done by Chairman Charles T. Terry and his Legislative Board, a few details of which are herewith given:

With regard to the Federal Automobile Bill, your committee, with the very efficient co-operation of Mr. Elliott, has had printed one thousand copies of the proposed letter which was embodied in our last report and has sent copies of that letter to all of the State associations and to all the individual members of the three A's appearing upon the books of the association, accompanied by a particular request on the part of the secretary of the three A's that the officers of each State association take immediate action in pursuance of the letter and report back to him what they had done. Already replies have begun to come in showing the widespread interest in the Federal Automobile Bill which this association has in hand. It will be noted that it is stated in the circular letter just referred to that the association will furnish further literature to those who wish to use it, in case they are not willing to prepare further letters of their own to send to congressmen, or in case they do not care to use copies of the letter which was sent to them as above described. In order that the association may have in hand ready for distribution, as occasion may require, a circular containing the chief point of argument in favor of the bill and what points will be likely to induce congressmen to lend their aid, the chairman of the committee has prepared a letter to be addressed to each particular congressman, and sent to him, not only from the office of the three A's, but also by all the people in the respective district of each particular congressman who can be induced to take up the matter, and sign and mail a copy of such letter to their particular representative in the national body.

With regard to the Uniform State Motor Vehicle Law, your committee has redrafted it in the light of a new study of the question, and also, after consideration of all the suggestions which have been received from every source with reference to it. It is suggested that the Board of Directors pass a resolution instructing the Legislative Board to have the proposed draft of a uniform state motor vehicle law printed and distributed by the secretary of the association, accompanied by a letter from the chairman of the Legislative Board, requesting suggestions and criticisms respecting any or all of the provisions of the said proposed uniform state motor vehicle law, or in the alternative approval of it in the form in which it is distributed, so that we can get a wide expression of opinion with reference to the merits or demerits of the proposed act.

If the bill should be approved substantially in the form in which it is now drafted, we recommend that formal action be taken upon it by the Board of Directors of three A's, at its next or some succeeding meeting, and that at that time further instructions be given by the board with reference to efforts to secure the enactment of the bill in the various State legislatures at their ensuing sessions.

Substantial Results of Good Roads Board.

Chairman Robert P. Hooper, of the Good Roads Board, supplied a report which indicates the era of highway improvement which is dawning throughout the country.

The active work of your Good Roads Board has been transferred from the office of the chairman to the subsidiary committees which we have formed in most all the States affiliated with us. I am pleased to state to you that, through the formation of these local committees, we have succeeded in arousing enthusiasm in a number of States, not only for the interest of good roads, but for the interest of automobiling in general, and have arranged for the formation of State associations in Virginia and in Georgia.

We are arranging now to form a Good Roads Committee in North and South Carolina. The men interested in the formation of these committees are now pushing a movement to build main highways from the seacoast through the States to Atlanta as the center point. If we meet with the success that we have every reason to believe we will, within a very short time, we will have a highway built by the States in conjunction with each other, connecting principal points in North and South Carolina and Georgia, which in itself will give an impetus to automobiling in the South such as it can secure in no other way.

Chairman M. C. Moore, in Wisconsin, reports that through the efforts of his committee they have had a Good Roads Convention in Milwaukee, at the State Fair, at which there were over 2,000 representatives, consisting of road supervisors and others interested in bettering the condition of the roads. They induced W. O. Hotchkiss, chairman of the State Geological Department, to construct a piece of good road on the grounds while the Fair was in session to illustrate to the road supervisors how the work was carried on. Already they have a movement on foot to introduce into their next legislature a liberal bill for State aid.

Frank W. Buffum, chairman of our committee in Missouri, reports that through their efforts an active campaign has begun to build a State highway from St. Louis to Kansas City, and that there is a most absolute certainty that they will be able to accomplish this within the next year, although it will of course take longer than that to build the road.

From Minnesota we have a report from our chairman, G. M. Palmer, that through the efforts of his committee they have aroused an interest in this movement all over the State, and that the farmers are actually joining hands with them in this work. Unfortunately, a large portion of the State is unable to secure the stone for road material, and they have to depend on dirt roads, but they are securing splendid results from the King road drag, and the towns are liberally coming to the front to pay one-half of the expense of working these drags to put the roads in good condition.

I could give reports like this from many States all over the country that would astonish were it possible to embody them in this short sketch of your committee, but I wish to emphasize one thing which is becoming more apparent to me every day, and that is that the farmers all over this country are at last realizing that there is a good side to an automobilist, and that with a very little work on our part we can secure their co-operation. If we can only convince them that we are willing to give our time to this work, with their interest before us as well as our own, we will have solved the problem.

There is to be a meeting of the executive committee of the Good Roads Board in New York on the 20th, to push the formation of a National Association of Associations. The work of the national body will be far more comprehensive than anything that we could expect from our own board, because of the fact that it will embrace such bodies as the National Grange, National Letter Carriers' Union, National Carriage Builders, Road Implement Association, Automobile Associations, both manufacturers and users, and in fact all bodies of men in this country that would be at all interested in the building of good roads. The purpose of the association when formed is to at once take up an active campaign to secure government aid for the building of national highways.

PITTSFIELD AUTOISTS TO ORGANIZE CLUB.

PITTSFIELD, MASS., Sept. 24.—As the result of an informal gathering at the Park Club last night, which was addressed by L. R. Speare, president of the Bay State Automobile Association; J. Fortescue, secretary of the Massachusetts Automobile Association; F. H. Elliott, secretary of the three A's, and A. G. Batchelder, editor of THE AUTOMOBILE, on the benefits accruing from the formation of an automobile club, it was decided to organize a local body, bringing together some 200 or more owners in the Berkshires. Dr. F. H. Brandow presided as chairman of the meeting, which chose former Mayor Daniel England, Samuel G. Colt and Robert J. Parker as a committee on organization.

OHIO'S AUTO LAW IS CONFUSING.

TOLEDO, O., Sept. 23.—The arrest of Harold W. Fraser, a prominent local attorney, for violating the Toledo speed ordinance will probably result in a legal controversy, the outcome of which will be of vital importance to all automobile owners in Ohio. Mr. Fraser has announced his intention of fighting the case through the court of last resort.

THE FRICTION CLUTCH IN AUTOMOBILE PRACTICE.

By FORREST R. JONES.

ONE of the problems in automobile construction is to produce a satisfactory friction clutch for use between the motor and transmission mechanism. A friction clutch is, of course, absolutely necessary for starting and stopping a car driven by a gasoline motor, unless friction gears are used. The latter have not yet been extensively adopted.

It is very evident that it is extremely desirable to have the clutch take hold without jerking and producing heavy stresses in the transmission, or spinning the road wheels with the consequent distortion of metallic parts and injury to tires.

One needs only to watch the action of cars when starting to be convinced that many of the clutches in use do not meet the requisite conditions. There are several, however, which, *when in good condition*, act with a very fair degree of satisfaction. But the good condition is difficult to maintain, and there are frequently undesirable properties inherent in the types of clutches used. Some of the principal ones form the basis of this article.

The Difficulty in Securing Smooth and Even Action.

The variation of the ease with which the rubbing surfaces slip over each other is one of the most serious obstacles to be met in the production of a smooth-acting friction clutch. In other words, the variation of the coefficient of friction makes it difficult to secure the desirable smooth action.

The friction surfaces which rub together to transmit the turning force from one to the other are either both of metal or one of metal and the other some substance such as leather, wood fiber, wood, etc. When metal to metal surfaces are used, they must be lubricated to prevent abrasion, cutting and scoring. It has been demonstrated by numerous experimenters that metallic surfaces slip over each other quite freely so long as a thin layer or film of oil lubricant is retained between them, but as soon as the film is broken so as to permit the metals to touch each other they develop a sudden and vastly greater tendency to cling together. If the pressure between them is great, and the speed of rubbing high, they will sometimes even weld together. This tendency to suddenly cling together is easily demonstrated by rubbing a knife over an oil-stone with oil on it and pressing the blade hard against the stone. Or by rubbing the knife, or some similar flat piece of metal, over another smooth plane surface of metal. In these examples, as well as in the clutch itself, there is generally enough lubricant retained in the minute depressions of the surfaces to prevent their serious wearing away. But this cannot be relied upon under the conditions of operation existing in the friction clutch.

When the rubbing surfaces become completely dry through excessive slipping or neglect, both of which are not uncommon in automobile practice, the coefficient of friction becomes many fold higher than that which must be taken as the basis for determining the amount of force to be used in pressing the friction members together.

The closing force must be sufficiently great to cause the desired amount of turning force and torque to be transmitted when the oil is only partly removed from between the friction surfaces. The closure spring or springs, commonly used in automobile clutches, must be set to exert a clutch-closing force great enough both to squeeze most of the oil from between the friction surfaces quickly so as to transmit the maximum uniform torque of the motor while the surfaces are still well enough lubricated by the remaining oil not to abrade when slipping over each other.

The thickness, or, more correctly, viscosity of the oil varies with the temperature. In cool weather, when the oil is more viscous than in warm, the clutch will not take hold as quickly as in the warm weather, because the thicker oil squeezes out more slowly. Even when the atmospheric temperature remains constant, that of the oil and friction parts is raised when there is much slipping, as when driving through a crowded thoroughfare or over bad roads where frequent variations of speed are made.

Under the conditions mentioned, metal to metal friction clutches are liable to grip suddenly and hard on account of the surfaces coming into closer contact than usual, even to the extent of abrading and scoring.

Leather Facings and Other Non-Metallic Materials.

Leather-faced cone clutches, and those using other non-metallic materials for one of the friction surfaces, are subject to the same idiosyncrasies in a general way. When the leather is properly prepared and new, the coefficient of friction between it and the metallic surface is fairly constant and the clutch behaves well. But the heat generated by the slipping which must of necessity occur when starting and changing gears ultimately burns and chars the leather so that it loses its elasticity and also causes a variation of the gripping capacity. This is not the most serious factor to deal with, however. The most undesirable and troublesome feature is getting oil on the friction surfaces. This is hardly preventable in automobile use. The oil causes the clutch to slip easier, especially when the parts have been somewhat warmed by starting the car, etc. The closure spring must be set harder to meet this change of condition. This, in itself, is not seriously objectionable. Unfortunately, however, the frictional resistance is not by any means the same when the surfaces are cool as when warm, as has been already stated for metal to metal surfaces. After the car has been standing some time, or running without slip in the clutch, the gripping capacity becomes greatly increased when the leather is oily. This often manifests itself very decidedly, sometimes even to the extent of breaking some part of the transmission system when the clutch takes hold instantly so that the inertia of the parts suddenly set in motion, in conjunction with the resistance of the road wheels to slipping, offers a resistance in excess of the strength of the parts.

Cork is not so seriously affected by the frictional heat of slipping as leather. Its elasticity remains practically unchanged.

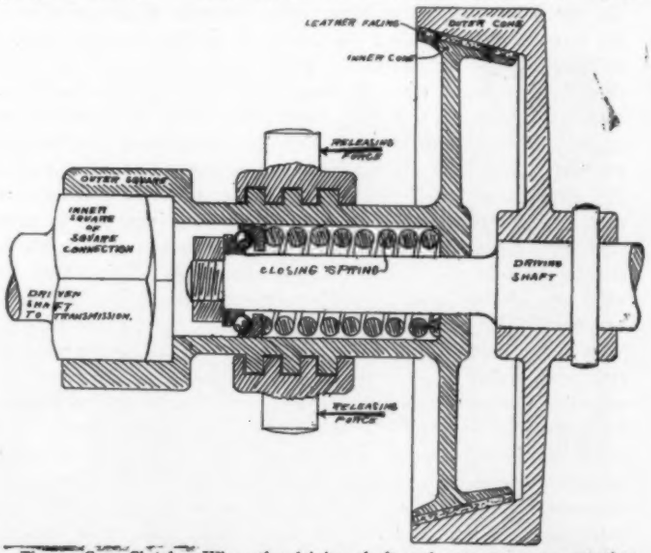


Fig. 1—Cone Clutch.—When the driving shaft and outer cone are rotating, and the inner leather-faced cone is brought into frictional engagement with the outer one by gradually reducing the releasing force, the pressure is increased between the outer and inner members of the square connection to the transmission shaft by the action of the torque. Considerable longitudinal force is necessary to slip the outer square forward over the inner one. When the slipping at the square joint starts, the parts jump forward suddenly because much less power is required to keep the parts slipping than to start them, and, as a result, the pressure between the cone surfaces is suddenly increased to an extent sufficient to cause the clutch to jerk. By enlarging the square joint, the resistance to longitudinal slipping between the inner and outer squares is reduced, but it cannot be eliminated.

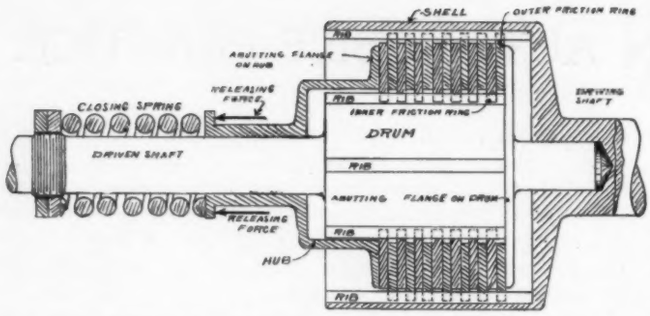


Fig. 2—Multi-Disk or Multi-Ring Clutch.—As the releasing force is reduced the hub and its abutting flange forces the disks toward the right so as to bring them into contact. As soon as they press against each other when the driving shaft is rotating, and the driven shaft is stationary or rotating at a different speed, generally slower, the frictional turning force acting on each disk causes it to press against the ribs, which prevent its turning in the shell, or on the drum, as the case may be. The frictional resistance to sliding along the ribs is approximately proportional to the turning force acting on each disk. The force necessary to move them when working up to nearly full capacity is considerable. The pressure for moving the disks must all be transmitted from the hub flange to the disk next it, and that disk transmits it to the others, all but what it takes to move it along the ribs, and so on, with a gradual reduction of pressure between each successive pair of disks to the drum flange. As a result the left-hand disk does more work than any other when closing the clutch. When it begins to slip along the rib it starts the others, and they all are suddenly brought to bear harder against each other. The result is a jerk. By increasing the diameter of the friction rings, both inside and outside, and decreasing their number, the jerking action can be reduced. This magnifies another seriously objectionable feature, however, in automobile use, namely, increase of inertia of the parts of the clutch that are attached to the transmission shaft, connecting to the speed change gears.

Oil and grease, however, are objectional factors that must be contended with in its use, as they change its character totally.

The ready compressibility of cork and the use of springs under the clutch leather both act to reduce the liability to sudden gripping.

Friction of Rest Greater Than That of Motion.

There is also another cause of gripping inherent to the usual types of cone and multi-disc clutches. In these types of clutches the closure and release are effected by moving the friction parts in a direction parallel to the axis or shaft of the clutch. In the cone clutch, the shifting cone member slides along the part with which it engages to transmit the torque to the transmission. The sliding of the clutch member over that of the transmission is accomplished while there is considerable pressure between them due to the torque transmitted. This pressure is proportional to the torque. When closing the clutch the shifting member reaches its final position by a series of quick, short movements, with full stops between them from the time the friction surfaces first touch each other, as the pedal or hand lever force is gradually released. This is in accordance with the well-known law that the friction of rest is greater than that of motion. It applies here to the sliding motion of the shifting member over the transmission part. This action causes sudden, intermittent increases of pressure between the friction surfaces and corresponding variation of the torque. It is in counteracting this jerky sliding that the elasticity of the cork or of the springs beneath the leather is beneficial.

In the multi-disk clutch the disks must slide along the feathers, ribs or bars that support them as the clutch closes. There is considerable pressure between each disk and the ribs which prevent its rotation from the time torque begins to be transmitted until the clutch is in complete engagement. The same series of intermittent movements parallel to the clutch shaft occurs here, as in the cone clutch. Various methods of counteracting the effect of this uneven motion, and for forcing the disks apart to release the clutch, have been put into use. The chief ones are the use of springs between one set of disks or crowning the disks themselves. It is clearly evident that such devices can only mitigate, but not eliminate, this undesirable feature.

The injurious effects of the sudden seizure of a clutch are not generally immediately noticeable, except in such extreme instances as the breaking of some part and the well-known injury to tires. A gear is sometimes stripped of its teeth, a chain snapped, the jaws broken from a positive clutch, a shaft bent, or a coupling torn apart. All these have come under the writer's notice in different forms at one time or another.

Destructive Results of Jerky Gripping, and a Remedy.

The more usual result of the gripping, aside from destruction of tires, is injury to some of the parts, which takes some time to develop. Thus, when ball bearings are used in the transmission, the extremely high pressure, or overload, brought upon them by the jerk, injures the surfaces which bear against the roll over each other. This injury does not manifest itself immediately, but after a time a flake of metal will loosen from the surface of the ball or race. After this occurs, deterioration is rapid, and complete destruction soon follows. The same is true of hardened gears. The sudden strain distorts the supporting parts, for all materials are more or less elastic, and causes the pressure between the intermeshing teeth to become localized at an end or a point of the tooth. The material is thus overstressed locally and, as with the ball bearing, a flake will be worked loose after awhile, and the rough surfaces, as well as the loose flake itself, begins its work of destruction. Keys, pins and feather keys used to transmit torque from one part to another are worked loose, and, when play backlash is once established, the shock of parts bringing up against each other works their destruction.

The remedy up to this writing has been to make the transmission parts much stronger, and consequently heavier, than would be required if the clutch could be closed with certainty that the torque could never exceed a certain accurately predetermined amount. This amount would naturally be taken about the maximum that the motor is able to develop on a steady pull, as when ascending the steepest hill the car can climb.

Such a clutch has recently been constructed and thoroughly tried out over hundreds of miles of bad and hilly roads, with gratifying results. The writer hopes soon to have the privilege of presenting to the readers of THE AUTOMOBILE a description of it, together with a history of the road trials and laboratory tests.

In it the turning force or torque is transmitted through a large number of small springs of the simplest form, each of which takes its proportionate share of the load. At a predetermined deflection of the springs the pressure between the friction parts is reduced and they are allowed to slip over each other while still transmitting the predetermined maximum torque. Oiliness or dryness of the friction surfaces does not appreciably affect the maximum torque. The elasticity of the springs also prevents shock and hammering of the transmission parts.

JERVIS ON A FUTURE PHASE OF THE INDUSTRY.

A. N. Jervis, one of the publicity experts of the Licensed Show, has the following in some of his recent press matter:

"It was natural enough that in producing a motor vehicle the motor should be first placed in the ruling type of carriage and that the shaftless buggy should be the pristine automobile form. It is natural again that when the demand arrived for the lowest-priced motor vehicle possible, the automobile engine and driving mechanism, having been developed to a high state of efficiency and reliability through the building of heavy and powerful cars, should be found adaptable in their advanced forms to the primitive type of horseless carriage. It seems now probable that this revised pattern of motor-driven buggy, minus hills, appealing to the greater number within whose means it comes, will outnumber in a few years all other forms of automobile."

RARITAN BRIDGE OPEN AGAIN OCTOBER 1.

PERTH AMBOY, N. J., Sept. 23.—The long constructed bridge over the Raritan river, connecting Perth and South Amboy, will be thrown open again to the public October 1. It has been in process of repair during the entire summer.

Living Over a Garage

By M. C. Krarup

A "STABLE STREET" IN NEW YORK.

In the foreground are the modern private garages of Payne Whitney and the late Randolph Guggenheimer, East Sixty-sixth street.

WITH buildings rising as much as forty stories above the ground and with cellars, subcellars, and sub-subcellars under the ground, with subways ramifying in many directions and tunnels criss-crossing in the depths below, the Island of Manhattan is becoming a very concentrated piece of real estate on which every square foot is expected to do its full duty in the way of supporting rental values. Given the ground valuation, the highest rent obtainable and the cost of construction by which this highest rent may be realized, it would be a question of precise mathematics to determine how many stories there should be erected on a building lot, if only the conditions existing at the time the calculations were made could be guaranteed to be permanent. But they are ever-changing and hereby the philosophy of real estate operations and building operations becomes very much more complicated. Changes in population, in industries, in commerce, and in politics are to be considered.

As far back as 1868 the advent of the elevator began to change the possibilities for high structures radically. Subsequently structural iron, working hand in hand with improvements in fireproofing methods, introduced new factors, which in turn became subject to varying estimates, according to fluctuations in the prices of iron and steel and of labor. Modern concrete and iron construction has again brought modifications. The natural conservatism of boards of underwriters restrains the skyward movement of buildings, and then suddenly, by the rescinding of old rulings or the passing of new ones, releases it.

Were it not for all these changing factors and the unequal opportunities for procuring capital as well as the varying estimates of what the future may bring in rise of values, it should be an unusual thing to see low and lofty buildings side by side in New York and other large cities. As a matter of fact, however, towering apartment houses and hotels and stately dwellings alternate with insignificant and lowly structures, largely stables and garages, in some of the best parts of the city where the ground valuations are apparently so well established that it should be easy for the owners to obtain better returns than the low structures referred to can yield.

"Those stables and garages belong to rich men who do not care for returns, and who, in fact, would not consent to have their property used for any other purpose than their own or occupied by any other persons than their own coachmen and chauffeurs," some real estate men say, in explanation. Others admit that the reason lies more deeply in the conditions, and that owners who so greatly appreciate the luxury of maintaining a stable or garage wholly and exclusively their own would probably erect buildings of a more ornamental character than those usually seen, which reflect little credit on their sense of luxury and elegance, if their choice were not in reality dictated to them and mostly due to some special difficulty in getting revenue from property including a private stable or garage.

This special difficulty is easily traced to the unalterable objection which particular people entertain against the idea of "living over a stable," especially if that stable is not their own. Throughout the movement which has sent buildings up high over the ground which they occupy, this objection, well founded upon the odors and flies that accompany horse establishments, has been strong enough to neutralize all effects of rising values and improved building methods in those residence districts where private stables or garages must be located to the extent of render-

EARLY ATTEMPT TO COMBINE PRIVATE GARAGES AND APARTMENTS ON EAST 75TH ST.

AN ARTIST'S STUDIO SURMOUNTS THIS PRIVATE GARAGE

This garage, which is located at 109 East Sixty-third street, is the property of Mr. Blair. Brownstone dwellings in background remodeled for garage purposes.

ing almost one-half of this area is, in a measure, unprofitable. Modern sanitation in stable buildings and improved methods in the care of horses have removed some of the reasons upon which this extremely costly objection against living apartments over a stable is founded, but the objection continues to live partly because the reasons for it are not everywhere removed and partly as a matter of tradition and of pride, and, by a natural association of ideas, it has even been extended to apply to living apartments over a private garage, so that it is practically impossible for the owner of a lot, which must be used for either stable or garage purposes on the ground floor, to figure upon obtaining the rents which the neighborhood should justify from any living apartments that he might arrange in other portions of the same building. And, were he to arrange apartments on a cheaper scale, then he would draw in an undesirable class of tenants to an otherwise desirable neighborhood, which is the very most effective method for lowering the tone and the values in that neighborhood in general.

Insurance Regulations and Popular Prejudice a Hindrance.

Insurance regulations, according to which any stable or garage property must not be occupied for residence, including cooking and housekeeping by more than one family, or at all, under penalty of prohibitive insurance rates, or unless fireproof construction is adopted, have also contributed to keeping such properties down to one, two, or at most three, stories, and those usually of ungenerous architecture and dimensions, the owner being actuated by the idea that the less valuable the improvements of the place, so long as it brings no direct revenue, or none commensurate with the value of the ground, the better is his chance for disposing of it at a profit as soon as a further rise in values shall make such a sale advisable.

Naturally, it has not escaped all observers that the good and sufficient reasons which in the first place created the objection against living over a stable are in reality wholly inapplicable to living over a private garage, unless the latter is conducted in an extremely slovenly manner or the living apartments are laid out as if only persons of very humble demands upon the comforts and amenities of life could contemplate occupying them. Many understand perfectly well that a modern many-storied building with a private garage occupying the greater portion of the ground floor may be made intrinsically more desirable for residence purposes, either for a single family or as an apartment building, than if that same ground floor constituted an apartment or were rented for a physician's or a real estate man's office or for a store; and they realize—architects and owners among them—that some of the so-called "stable streets" might be transformed into rows of profitable residential buildings without surrendering any of the accommodations they now afford for housing the modern means of transportation—the automobiles—were it not solely that nobody dares to undertake this innovation in localities where rents should be high, for fear of running afoul of the still surviving popular prejudice, among those who are able to pay high rents, against "living over a garage."

It remains for the press to abate this prejudice as rapidly as possible and thereby to contribute not only to the readier and more convenient housing of automobiles, and incidentally to the more extensive sale of them, but also to the more systematic caretaking, cleanliness and precaution against fires which will be compulsory in such buildings as here contemplated, and to the erection of fine, monumental structures in localities which are now anything but attractive, though cheek by jowl with the most elegant residential quarters of the city.

The garage arrangements in the new Automobile Club of America on Fifty-fourth street and the vestibule in the Home Club on Forty-eighth street bear testimony to the perfect compatibility which exists between home surroundings—which do not differ greatly from club surroundings in character—and garage facilities, if the latter are properly understood as not including that machine shop equipment, with hammering and noise, which was considered necessary in the probation days of the automobile.

Architects Beginning to Appreciate the Situation.

Among the younger architects several realize that the automobile is destined to become one in that series of engineering developments—the elevator, structural iron and concrete construction, electrical progress, the telephone, the use of small engine power, etc.—by which their profession has been well-nigh revolutionized and by which new chances for earning distinction in that profession have been opened for those who prove capable of properly gauging the rights of the new against the rights of the old. They know that much which is old in the building world need not necessarily be profitable and well-considered, but also that anything new they may propose to an owner of real estate in the way of a building venture must offer almost positive guarantees of profits above the ordinary; and with this condition in view they consider it the part of wisdom to make haste slowly in planning the incorporation of the automobile garage in large structures intended to yield a profit as high-class residence property. They know the strength of the prejudice which is the main subject of this article, and they know how slowly it will die, though die it must.

On the other hand, some of them are aware that there is at present an active demand for what is known as studio-apartments, not only among artists but a demand extending to thousands who have no professional use for the very large room, or rooms, with high-light or skylight arrangements which constitute the distinguishing feature of this class of living rooms; and these architects seize shrewdly upon this fact as one which affords the desired opportunity for rebuilding the obnoxious stables or garages on a plan that should prove profitable to the owners and creditable to themselves, it being an admitted supposition that the particular class of people who desire studio-apartments are least influenced by social prejudices or traditions, while willing to pay a rent proportionate to the real qualities of the houseroom offered them.

This seems a pretty solution for the temporary deadlock between the old prejudice against stables, which has been so thoughtlessly paraphrased as to include private garages, and the natural desire for enlarging the good residence zone of the city while also catering to the ever-growing demand for garage facilities in the immediate vicinity of those who own the automobiles.

The architects of the future have in mind buildings of considerable size and many stories, such as have not yet been materialized in practice, but an example on a smaller scale of the combination of private garage and artists' studio may be seen at 109 East Sixty-third street, a garage belonging to Mr. Blair, a banker, and of which the top floor is occupied as a painter's studio, while the second floor, as usual, affords living-quarters for the chauffeur and his family.

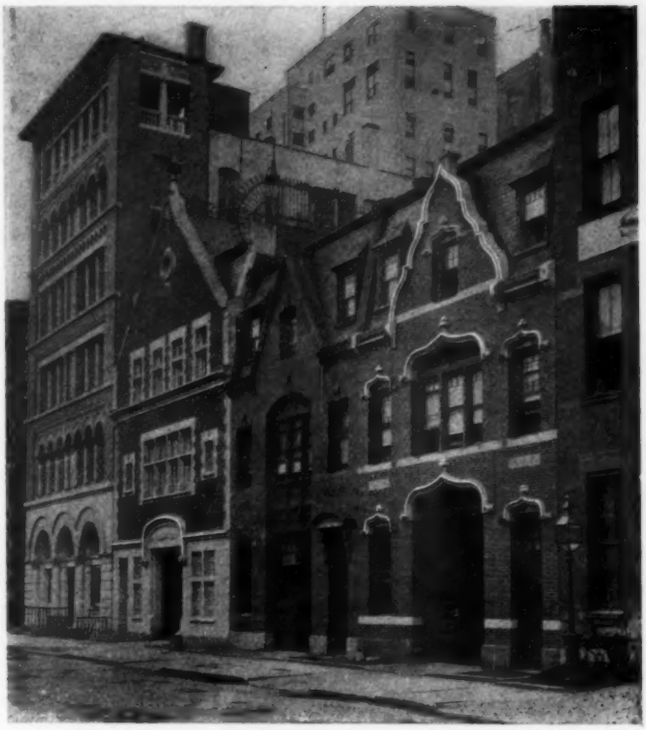
Where Some of the Modern Private Garages Are Located.

Among owners of automobiles and of horses there seems to have been a very general appreciation of the anomaly in occupying expensive lots with low, hideous and unprofitable stable or garage buildings, but in the face of the prejudice referred to they have accepted a compromise solution. They have sought localities where lots were less high priced, such as the vicinity of Lexington avenue, and where the influx of a less pretentious class of residents gave promise that nicely appointed rooms over a garage, or even over a neat-appearing and neatly-kept stable, would not be despised, and here they have erected structures of two, three or four stories, which, though probably not profitable, are at least a credit to the neighborhood in which they are placed. As a rule they are fireproofed, at least as this phrase goes, and often they are distinctly ornamental.

In this latter class the garage building on Sixty-sixth street, near Lexington avenue, of which one part belongs to Payne Whitney and the other to the Guggenheimer estate, is prominent, but apparently no idea of deriving any revenue from it has been entertained. Generally it is true that the costlier the building the less evidence does it present of any desire to rent any part of it out. Such buildings as the large garage on East Seventy-third street, between Lexington and Third avenues, belonging to ex-Mayor Grant and his friend, Mr. Brady, where some fifteen automobiles are housed, and Mr. Pulitzer's stable and garage on the same street, are interesting examples of automobile garage and stable architecture, but have little to do with the present subject. On other streets in the same vicinity, however, on East Seventy-sixth, Seventy-fifth, Seventy-fourth, Sixty-sixth, Sixty-third, between Lexington and Park avenues, and on East Sixty-second, between Park and Madison avenues, a number of garages are observed in which the upper stories are occupied by tenants other than the chauffeurs or caretakers.

Exterior Appearance a Necessary Adjunct to Success.

But, throughout, the step of bidding for tenants has been taken only falteringly, except in one instance which is illustrated in an accompanying photograph; and in this instance a failure has evidently been scored. The building is four stories high and contains four would-be garages, one of which is occupied by a blacksmith and another by a carpenter, and a large sign announces that the living-apartments above are for rent for business purposes. The history of the building has not been one of economic success, since it was erected some eight or nine years ago by one more foresighted than cautious; but there is evidence that the fault may lie largely in the architecture, and indeed it would have been remarkable if at that early day the true requirements for garages and for living-apartments above them could have been even approximately foreseen, considering that at this very day only the most progressive architects have begun to work out the various problems which these requirements involve, on the drawing board, and are just learning to understand what errors have been committed by the few who during the past years lightly undertook similar tasks.



GARAGES AND STABLES WITH LIVING QUARTERS ABOVE THEM.

These buildings are located on East Sixty-second street, between Park and Madison avenues. In the foreground is shown O. F. Thomas' private garage.

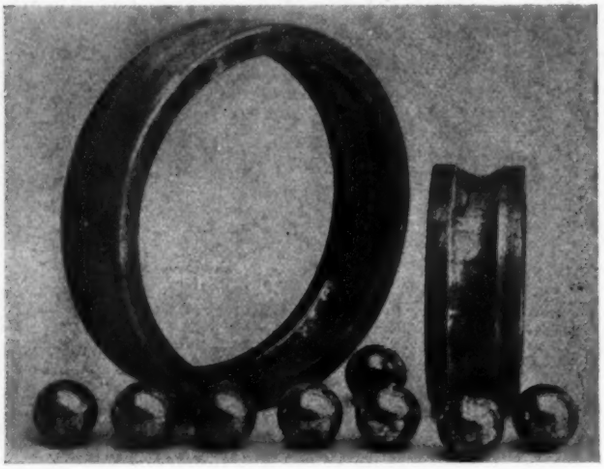
Two points relating to the exterior appearance of such buildings have been made clear. They must not conform with stable architecture; that is, the entrance to the living-apartments must not be slighted in comparison with the entrance to the garage, and the windows must not be low and humble; for a private house the entrances may be combined, as in the house erected by the architect of the Automobile Club for himself at 109 East Fortieth street; but, if apartments are to be rented, all assertion of prejudice must be forestalled by a liberal use of those architectural embellishments which proclaim the dignity of a house intended primarily for human habitation. Human pride rebels against any direct or implied subordination to either automobiles or horses, and can scarcely be blamed. The two entrances must be at least equal in artistic elaboration and in this respect it is fortunate that the automobile does not require as broad an entrance as carriages drawn by horses. A barely completed stable-garage on East Fifty-third street shows two coordinate entrances, designed on this plan; but richer suggestions are supplied in some of the old French houses from the middle ages, some of which those who have toured in the *chateau* region of France will have noticed.

The other point referred to relates to the equipment of the garage. It has become evident that the larger the investment which the building represents in which it is located, the more thoroughly it must be fireproofed and provided with all the scientific facilities for storing of fuel, cleaning of vehicles and floors, electric charging of batteries (or at least the wiring for it), so that it may under all circumstances represent a current rental value, even if the man who has it planned for his own use should decide to abandon it for any reason which may arise in the course of human events. New York affords more than one striking illustration of the errant perversity of fortune in failing to smile upon real estate improvements of a special character in connection with the automobile, even where the conditions involve no such phases as are presented by the problem of profitably combining garage and living accommodations which now confronts many a metropolitan architect.

INFLUENCE OF ACID AND RUST ON BALL BEARINGS*

By HENRY HESS.

MANY of the members of this society have a decided interest in the integrity of ball bearings, some because they ride in cars mounted on them and do not want to add to the revenues of the medical profession, because a bearing gives out—others because of this and also because their kindly souls are grieved when they hear of mishaps to the users of their cars, not to speak of the pain experienced from demands for replacement.



EFFECT OF ACID AND RUST ON BALLS AND RACES.

Now, I am in a position to know fairly well what troubles develop with ball bearings, since my company supplies them, and since every chap who has a grievance registers his kick with us. I find the chief causes of trouble to be dirt, rust and acid. Pretty nearly every one to whose attention grit and rust are drawn will recognize and acknowledge their presence and agree that it cannot be considered anything but harmful. But when acid damage is referred to, that is met with an incredulous stare if not a downright denial of its possibility, and a request to be told where acid could possibly come from.

To those familiar with lubricants the thing is not so mysterious. I remember very well an occurrence of years ago, when I was building machine tools, and was interested in ball bearings only because those in my bicycle either always wanted a new ball or taking up or something. It so happened that a certain machine was set back for some more urgent job. On taking it up again the main spindle journal was found to be badly scarred with deep, irregular channels and pits. Wild theories of the existence of a new bug that thrived on steel were propounded, but the solution was much simpler. The bug was found to be a combination of waste, acid oil, and heat to make the acid action more energetic. The next lesson in lubrication I received when building some heavy motor-driven, high-speed lathes, having a steel-worm driving a bronze gear with the combination immersed in oil. Deposits of copper were found on the worm and other steel parts. The obscure occurrence was found to be due to acid in the oil bath and a slight current leakage combining to form an electroplating bath.

The two races and the series of balls that I have circulated were recently returned by one of our customers. They constitute a beautiful example of the action of an acid lubricant. The balls are irregularly etched on their surface. The races are similarly etched. There are also transverse discolored bands that are slightly etched in the ball tracks. These correspond to the positions of the separator end plates, and show that the machine stood for some time. It is a peculiarity that acid acts more energetically where the metal surfaces are in more intimate contact. This is probably because the small space acts by capillarity to set up a slight current to always draw from the adjacent masses a fresh supply of unspent acid lubricant. Now, it is a very fully demonstrated fact that the life of a ball bearing is proportional to the perfection of the surfaces of the balls and races. Poor finish means short life; acid pockmarks are not only symptoms of a serious ball-bearing disease, but in themselves cause its early demise. That acid lubricants do produce these symptoms is clear enough from the parts exhibited.

The remedy is the use of lubricant that is neutral and that will remain so. There are many such to be had, some at high, and some at reasonable prices. It does not follow that a costly lubricant is free of acid taint. In general the mineral oils are best. Animal or vegetable oils are to be avoided; though they may not contain free acid when bought, they are fairly certain to develop it under suitable conditions of exposure to heat, sunlight, etc. The best test that I know of is to take a piece of brightly-polished clean steel, wrap around this heavy threads from waste thoroughly soaked in the lubricant under test, and expose this to the sun's rays in some fairly warm place. Suitable oil or grease will show no etching, even after months of exposure. In bad cases the oil will stand convicted after a few hours or days, or at most a week or so.

*Paper read before the Society of Automobile Engineers, Buffalo, July, 1907.

AUTOMOBILING'S RAPID STRIDES IN CHINA

Referring to his previous report on the introduction of automobiles into the colony of Kiachow, China, Consul Wilbur T. Gracey, of Tsingtau, submits additional information. He says:

In continuation of my report published in Daily Consular and Trade Reports on May 2, 1907, it is interesting to note remarks in regard to automobiles in Shanghai, which appear in a recently published report by the Commissioner of Customs at that port:

There is also some idea of supplementing the tramway by lines of motor omnibuses. One of the alternative schemes to the tramway, and one which was strongly advocated, was to have no tramways at all, but lines of motor vehicles. This scheme was negatived, mainly, upon the hypothesis that the native could not be trusted to become a reliable chauffeur. Curiously enough, the reverse has proved to be the fact, and no modern invention has developed more rapidly in Shanghai, or contributed more to the expansion of the town, than the motor industry. Garages and repair shops are springing up in all directions, and the large number of valuable motor cars and motor boats, all of which are most of the time solely in charge of the native chauffeur, would strike any newly arrived Occidental as exceptional anywhere. Many wealthy natives have acquired cars, which they drive themselves at times, while enormous motor vans, used by firms which have their godowns far removed from their office, the municipal council's new motor chemical fire engine, etc., all prove how welcome and serviceable the new industry is in this flat country. It is even suggested that a good road along the river bank to Woosung, which might be easily made owing to the existence of a dike which would only need widening from the river side, would do more to promote the expansion of Shanghai than the projected road to the hills. The latter proposal would be very expensive.

Shanghai is the only other port in China, besides Tsingtau, where automobiles can be used with any success. The roads are excellent macadam and run for twenty miles into the country.

LETTERS INTERESTING AND INSTRUCTIVE

WHY IS THE TWO-CYCLE NOT POPULAR?

Editor THE AUTOMOBILE:

[910.]—Will you kindly inform me through "The Automobile" what the general objection is to the two-cycle engine. I have read all kinds of criticisms—mostly against this type of engine—but I have yet to find a user of an Elmore car that is not an enthusiast. I have been operating all kinds of cars for the past six years and I now own a three-cylinder Elmore, which I have had for some time. I have been trying hard to find some objection to the engine in my car and the more I try to find some faults with it the more I am convinced that the four-cycle engine is not in it. It is the most perfect running piece of machinery I have ever seen.

Will you please inform me why this type of engine is not more in use? Is it on account of patents or on account of ignorance? It is certainly the most simple engine made and the power it develops is a revelation. CHAS. J. CHABOT.

Dallas, Tex.

We are not aware that there is any *general* objection to the two-cycle motor in the sense that there is a popular prejudice against it, as such is not the fact. If other makers were to take up the construction of a car with a two-cycle motor and push it energetically there would be a far greater number of this class in use. As it is, the average manufacturer realizes that it is much easier to sell a four-cycle car than a two-cycle, simply because the public has not been educated to the latter. The man in the street most frequently buys a certain make of car because a friend of his has one or recommended it, and as two-cycle cars are greatly in the minority, they do not get these recommendations as often as they would were the case otherwise. Under existing circumstances it is necessary to make a convert to the two-cycle principle every time a car is sold, and while an intending purchaser may be convinced of the superiority of the two-cycle owing to its simplicity, he cannot reconcile this and the fact that there are so few in use, comparatively speaking. It is extremely difficult to overcome the inertia and conservatism of the buying public. Technically, the objection to the two-cycle engine is that it is not as efficient as the four-cycle, owing to the fact that the incoming charge is always more or less diluted with the burnt gases of the previous explosion, and a portion of the fresh charge also seems to escape through the exhaust before the closing of the latter port. These faults are such that they should have little or no weight with the average buyer, for so far as the everyday user is concerned, they are doubtless counterbalanced by the disadvantages of valves and their mechanism in the four-cycle engine. It is simply because the makers find it easier to sell four-cycle machines and prefer to work along the line of least resistance.

CHANGING THE CARBURETER ON A RUNABOUT.

Editor THE AUTOMOBILE:

[911.]—I am the owner of a 1906 runabout, and have been troubled considerably with my carbureter, which is of a very simple pattern, and made by the manufacturers, but while it was very good for a time, it has now become shaky in several parts, and doctoring does very little good. I propose substituting a Schebler, and, with this end in view, wrote Wheeler & Schebler, who recommended putting in a one-and-a-quarter-inch size, but a local mechanic tells me that this size is unnecessarily large, and that a one-inch would be the proper size. If you know anything about the matter, also the possibility of obtaining ready-made fittings for making the connections, wish you would write me, and oblige a subscriber. C. F. H. v. BLUCHER.

Corpus Christi, Texas.

We believe that you would be well advised to adopt the one-and-a-quarter-inch size carbureter in preference to a smaller model. You should have no difficulty in fitting this carbureter in place of the one now employed; the present piping may be used again, and we believe that the necessary unions are supplied as a part of the carbureter. If not they can be obtained from the maker at a slight additional charge.

TO INCREASE THE POWER OF A 1905 CAR.

Editor THE AUTOMOBILE:

[912.]—Will you please let me know through the "Letters Interesting and Instructive" column of "The Automobile" if it is possible to increase the power of engines in a four-cylinder Ford touring car, 1905 model? I intend to enlarge the exhaust pipes and make larger openings into same. The exhaust pipes are very small. Would it be advisable in my case to increase the initial compression, and would you advise me to increase size of valves?

Erie, Pa. W. C. S.

It would probably be possible for you to slightly increase the power of your engine by increasing the compression a little. We should not advise you, however, to touch the valves. Before making any changes it would be advisable to look to your piston rings and see that you have the maximum compression with motor in present condition. Unless the compression is exceptionally low it would be better to let well enough alone. Enlarging the exhaust openings would not be worth the trouble involved. If, as you say, the pipes are exceptionally small, you might get rid of the exhaust more quickly and thus cool the engine better by enlarging them, but we should not advise you to make any change in the present opening. You can experiment for yourself what the probable effect will be by noting carefully the performance of the car on some hill in its present condition, and running it over the same ground several times with exhaust pipes off.

ABOUT CELLULAR AND TUBULAR RADIATORS.

Editor THE AUTOMOBILE:

[913.]—I am an interested reader of "The Automobile," and solicit information. Will you kindly publish in your "Letters Interesting and Instructive" whether the cellular or tubular radiator cools more effectively, which is the heavier, which is the most preferred, and why? P. M. F.

Philadelphia, Pa.

Generally the cellular or honeycomb radiator, by exposing a larger cooling surface to the air within given external dimensions, cools more effectively. So much depends on the material and workmanship that it is impossible to say emphatically which type is the heavier; probably if weights were obtained of half a dozen different makes of each type it would be found that the tubular radiator weighed a little less than the cellular type. As to which is most preferred is a matter of opinion. Although the cellular type gives the maximum of cooling area in the minimum of space, it has the disadvantage of being more delicate of construction. A good cellular radiator is all that could be desired, but a poorly constructed one is an eternal pest. The good points of the tubular radiator are its simplicity and ability to stand rough usage.

QUESTIONS CONCERNING A NORTHERN.

Editor THE AUTOMOBILE:

[914.]—I have a Northern two-cylinder touring car and would appreciate it if you could throw some light on the following:

1. When the throttle and spark are advanced beyond a certain point, the engine seems to choke and slow down. This happens when the levers are advanced beyond the three-quarter point; that is, three-quarters of the whole distance. Otherwise the car runs very well.

2. When I start the motor up after it has been standing for half an hour or so, it only fires on one cylinder for about twenty revolutions. Then they both begin working. Why is this?

3. If I ran a pipe from the carbureter air-intake to the outside of the exhaust pipe so that warm air could be taken into the carbureter, as shown in the drawing, would it make the motor run any smoother? A READER.

Chicago.

1. This is probably due to failure of the auxiliary air inlet to work beyond the point you mention. Up to that point it increases the supply of air in accordance with the speed of the motor, thus keeping the mixture uniform, but when the three-quarter point is passed, the valve either cannot open any more, or its full opening is not correctly calculated to supply the proper quantity of air

for the maximum speed and power. Doubtless you will find the former to be the case, some obstruction preventing the full opening of the valve. A test of the nozzle adjustment to verify the latter and find out if the proper amount of gasoline is being fed might also be beneficial. As the engines and complete chassis are thoroughly tested out before being passed at the factory, the trouble is very much more apt to lie in a lack of adjustment.

2. It would seem as if but one cylinder received a supply of fuel until the motor was warmed up a bit. The foregoing reply will be found to apply to this. See if the carbureter is properly adjusted in every way and doubtless the trouble will disappear.

3. It will doubtless be found an advantage to fit a warm air pipe such as you mention. We should not recommend a piece of rubber hose for the purpose, however, but rather a metal tube which can be equipped with a cut-out as is done on many cars.

WHY THE SELDEN PATENT HAS NOT EXPIRED.

Editor THE AUTOMOBILE:

[915.]—Will you kindly explain through "Letters Interesting and Instructive" why the Selden patent has not expired, as I understand it was secured in 1877. F. W. O. & S.

Nyack, N. Y.

The Selden patent, which bears the Patent Office No. 549,160, was not secured in 1877, as you presume by your letter; in fact, the application for the patent was not filed until 1879. Proceedings in the Patent Office delayed the issue of the patent until November 5, 1895. As patents are issued for seventeen years, it has still five years to run.

ONE MAN'S EXPERIENCE IN THE INDUSTRY.

Editor THE AUTOMOBILE:

[916.]—I would like to answer Letter No. 892, on page 359, issue of September 12, 1907, in which he asks advice about entering the auto business. My advice to him would be to stick where he is, to work faithfully and honestly for his employers, and he will be better off than if he undertook to learn the auto business, notwithstanding that same is still in its infancy.

My reason for making the above assertion is based on personal experience and observation, and can be substantiated upon investigation. Personal experience covers more than twelve years, engaged in various departments of the gas engine and automobile industry, with excellent references from such companies as I have been engaged by. I am and have been unable to obtain a position since the trustees of the company, of which the auto department was a part, decided to close same, owing to financial difficulties of the head of the concern.

I have written to more than a hundred companies in the industry; have less than fifty replies, in which they answer that they will file my application; the others did not even offer to do that much; I have answered one "ad" for a position as traveling salesman (same has appeared eight times in your magazine) five times, also others, and have never received one answer to any of them; my experience, technical knowledge, ability, etc., fully qualify me for such a position.

As excellent an authority as Mr. Reeves, the general manager of the A. M. C. M. A., has recognized my qualifications as above and has placed my name at or near the top of the list kept by the employment bureau of the association. Concerns having my name on file must have lost the file, as every once in a while I see in "News and Trade Miscellany" that so and so has gone with this or that concern.

In the New York "Herald," issue of Sunday, September 15, there were fifty-five "ads" of positions wanted by chauffeurs and repairmen, and two "ads" of help wanted in the last issue of your magazine. There were fifty-five men who advertised for positions, covering every department in the automobile industry, and thirty-four "ads" wanting help, of which fifteen were operators, or actually nineteen concerns needing help.

Graduates are being turned out by the dozens, diploma, license, and recommendation for $25. They even offer positions, paying $100 to $150 per month for their graduates. I tested out last winter more than twenty men, who had made applications for positions as demonstrators and salesmen, and did not find one worth $40 per month, let alone $150. Nearly every one in the trade can give you many instances where cars have been ruined by ignorant chauffeurs and mechanics, and the upkeep of most cars is from 10 to 25 per cent. higher than it should be owing to grafting done by these same graduates.

Mr. Words, the industry has not as yet settled into its proper place, and, even if it had, it would take from three to five years to properly learn same, as it covers more than one department of mechanics. I have made it a close study for years in the various departments and am still a long way from knowing it all. Stick at what you are now doing, faithful and honest service will be appreciated by your employers and your compensation will probably be as great as it would be in the auto business.

New York City. EXPERIENCED.

PAUL LACROIX DIDN'T DRIVE SELDEN '77 BUGGY.

Editor THE AUTOMOBILE:

[917.]—I have just seen in your issue of September 12, page 353, a photograph of myself and Mr. Lamberjack in a car designated: "The Original Selden Gas Buggy." The last paragraph of the article, which is entitled "Selden '77 Buggy Proves Its Practicability," reads as follows:

"There were many interested witnesses who were surprised at the showing made by the old buggy, not the least being Paul Lacroix and E. Lamberjack, of Paris, who saw the car in operation for the first time. They were also given an opportunity of testing the weight of the claims of its backers with regard to its running powers by getting in and running it themselves."

In view of the fact that I am engaged in the sale of cars manufactured by Renault Frères, your article places me in the position of a person who, while he repudiates the validity and the practicability of the Selden patent, is surprised at the good performance of a car claimed to have been built in conformity therewith.

It is true that on Friday, September 6, Mr. Lamberjack and myself saw the car known as the "Selden gas buggy" on Forty-ninth street; it is also true that we sat in such car so that the photograph might be taken. When we did so we had no idea that such photograph would be used for an article such as that in your paper; neither had we any idea that the photograph would be used for the purpose of making plausible a statement that we operated the car.

The statement that we operated the car is wholly without foundation. The statement that we were surprised at the performance of the car is, in a sense, true. Our surprise, however, was at the very bad performance of the car, and at the fact that much fuss has been made over so impracticable a device. What we saw was a car equipped with a modern system of electric ignition, though no such system is shown in the patent. Even with such ignition twelve attempts made during a period of two hours resulted in an aggregate operation of about 12 minutes, and over a distance of about 4,000 feet.

To some the performance may have proved practicability, but, in justice to me, kindly publish this letter, so that I may not be accused of being among such number. Between such a car and even a mule—give me the mule. A mule may be slow, and even balky; with him there would be some probability of one's reaching his destination; with a car such as I saw, there would be none.

New York City. PAUL LACROIX.

TRADE WARNED OF A SLICK INDIVIDUAL.

Editor THE AUTOMOBILE:

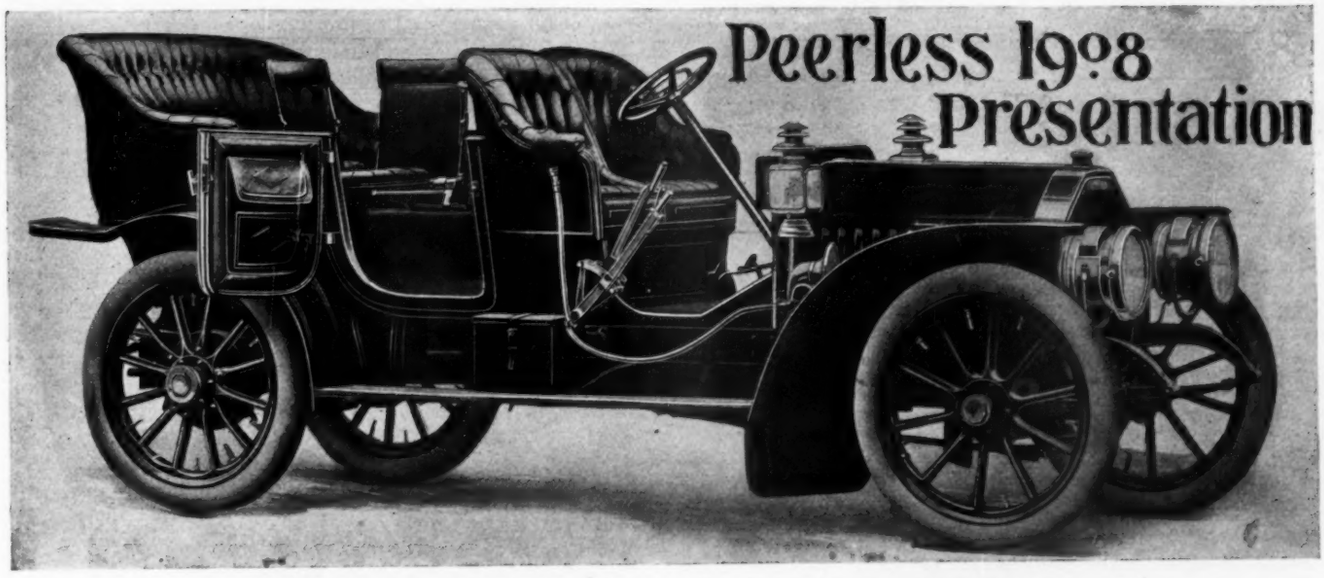
[918.]—We had a call the other day from a very slick individual with a strong English accent, who claimed to be H. G. Graham, son of the president of Argyll Motors, Ltd., Glasgow, Scotland. He claimed to have charge of the Argyll London branch, which is near our London office, seemed to be intimately acquainted with our London representatives, knew to a dollar the amount of goods we had sold in London this year, and knew that we had just received an order for a number of lights for the king's new car, and possessed a lot of other information which would make it seem certain that he was what he represented himself to be.

He stated that he had secured the contract for several thousand lights for the 1908 Argyll cars, and after showing to his own satisfaction that our success abroad was largely due to his unrewarded efforts, remembered that he was short of funds, and tried to secure a loan. Having become suspicious, we turned him over to the police, and found that he had nearly $1,000 in his pockets. As he had secured nothing from us, we let him go, but now regret this, as he appears to be a professional swindler, and he is such a slick article that we think the trade should be warned.

He speaks very rapidly with a strong English accent, with a great deal of unnecessary profanity; is about 5 feet 5 inches, weighs about 150 pounds, has a smooth face with rather florid complexion, wears glasses, and has very poor teeth, many of them missing, as a result, he explains, of an accident when he was driving the Argyll car in the Isle of Man races last year. When he called on us he wore a blue sack suit and cheap plaid cap from Detroit. He showed a railway ticket on which he had just come from Pittsburg, and claimed to have just placed a $50,000 contract with the American Vanadium Company, who have just advised us that they never heard of the man.

Plainfield, N. J. S. W. RUSHMORE.

Peerless 1908 Presentation



MODEL 18, 30-HORSEPOWER TOURING CAR, THE LEADER OF THE 1908 PEERLESS LINE.

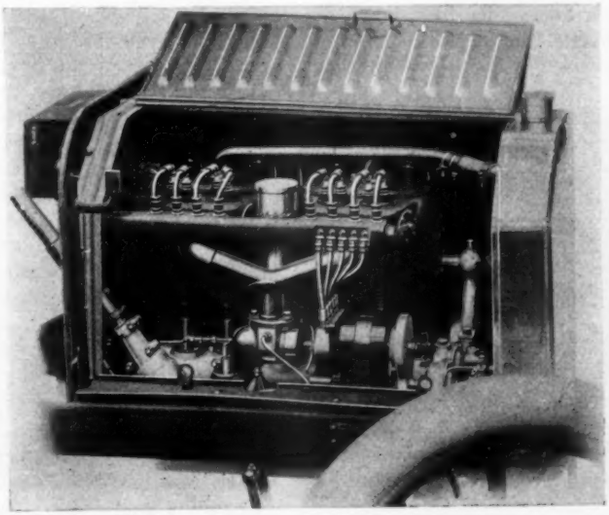
IT is significant of the more settled conditions of automobile design that structural changes in succeeding models from the leading factories are becoming fewer and fewer. Alterations there always will be as added experience reveals defects and researches make possible further improvements, but radical departures from the models of the preceeding year are now a thing of the past. It is a state of affairs which cannot but be eminently satisfactory to every user of an automobile, for it is an assurance that depreciation, once the bugbear of the user, has been reduced to its minimum.

An illustration of this settling tendency is found by a comparison of the Peerless Motor Car Company's models for 1908, details of which have just been made known, and the cars turned out by the Cleveland firm during the current year. To the 30- and 45-horsepower models of last season has been added a six-cylinder car, developing 57-horsepower, according to A. L. A. M. rating. Its cylinder dimensions are 4 7-8 by 5 1-2 inches, the same general motor construction being used here as on the other models. Wheelbase is 133 inches, and a seven-passenger touring body will be fitted. This model, the first of which has been undergoing road tests the greater part of the summer, will be manufactured after January 1. The "fours" for 1908 have already begun to issue from the factory.

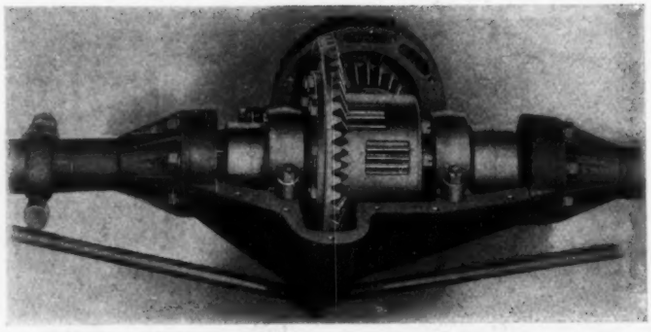
The principal changes of next year's models over those of this season are a larger wheelbase, seven-passenger body, radiator directly over front axle, 36-inch wheels, flat springs, and a double ignition system, with magneto as a part of the regular equipment. A review of the features of Model 18, rated as 30-horsepower, will cover all essentials of the two types.

Motor.—In general features the construction of the motor is the same as Model 16, of last year. Cylinder bore has been increased to 4 7-8 inches, stroke remaining 5 1-2 inches, as before. The cylinders are cast in pairs, with offset intake and mechanically operated valves on opposite sides. Instead of aluminum, the water-jacket plates are all made in copper. Construction has been slightly changed in order to insure a more certain removal of core sand. The crankcase is a single aluminum casting, designed for strength and non-leakage of oil, with large hand-hole plates, by means of which easy access can be had to connecting rods and bearings. The crankshaft is a solid drop forging, specially treated, hardened and ground accurately to size. All gears, including half-time, pump and magneto gears, are encased in the forward end of the motor and run in oil, thus minimizing wear and preventing noise. The front bearing is fitted with a stuffing box to prevent leakage of oil. Both intake and exhaust valves, which are mechanically operated, are flat-seated and are made of a special alloy imported valve steel, as used during the past two years. They are adjustable to take up all wear, and to insure silent running after long use.

Ignition and Carbureter.—Instead of a magneto being furnished as an extra, it now forms a part of the regular equipment of all Peerless cars. The Eiseman high-tension type is used, and is mounted on a platform on intake side of the motor. In addition, the same coil, commutator and single battery as used in 1907 is again employed, thus giving two independent ignition systems, each with its own set of plugs. The advantage of this double system is that either can be used independently of the other; thus, the commutator, spark coil and battery may be entirely removed from the car, and there still remains a perfect magneto system; or, on the other hand, the magneto may be taken off, and there is the same well-known battery system employed for several years. All wires are connected with their terminals by a spring attachment, there being no thumb-nuts to release. The magneto can be entirely removed without difficulty in less than five minutes. The commutator is located on the right-hand side of the motor, between the two cylinders, and is brought up level with the top of the cylinders. The carbureter is automatic in its action, providing suitable mixtures for varying motor speeds. The throttle is controlled by



PEERLESS MOTOR, SHOWING METHOD OF WIRING.



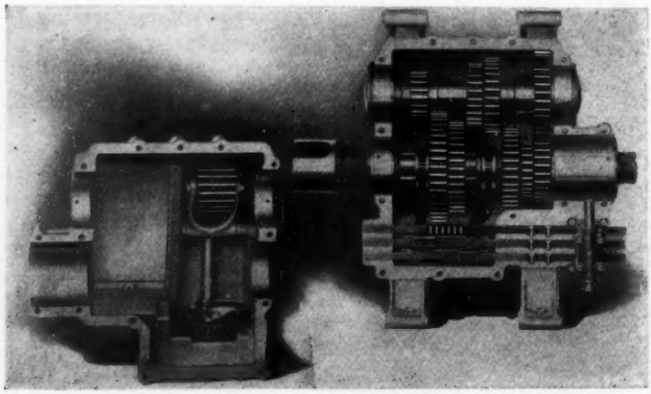
PEERLESS DIFFERENTIAL SHOWING WORKING PARTS.

hand lever on steering wheel, by accelerator pedal and by a governor.

Lubrication.—Improvements have been made in the oiler so as to cut down the number of oil pipes and connections, and it is now connected with the front and rear compartments of the crankcase, so that by means of a two-way cock the different compartments may be filled direct from the oil tank. Lubrication of the pistons is provided by oil leads from the lubricator to the cylinders, the flow being regulated by means of sight-feeds on the dash. Crankshaft, wristpins, bearings, camshafts, cams and all gears are oiled by splash from the crankcase, which oil is replenished by tubes from the lubricator and regulated by sight feeds on the dash.

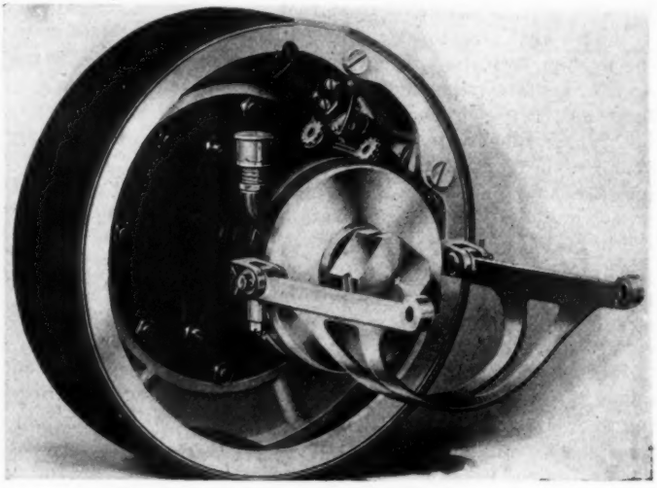
Water Circulation.—An increase has been made in the size of the radiator over that of last year. By placing it directly over the front axle, instead of slightly forward, the lines of the car have been rendered more graceful. Water circulation is assured by a gear pump. The fan has been materially improved—it is now a single-piece aluminum, and is driven by bevel gears instead of by belt. The construction is particularly robust, extra strength being given to the bracket by bolting it to the forward cylinder.

Transmission and Drive.—Connecting the internal expanding clutch with the transmission is a shaft with universal joints at both ends, allowing for easy removal of the clutch without disturbing any other part of the mechanism. Four forward speeds and reverse are provided through sliding gear of the selective type, all controlled by a single lever. Imported ball-bearings of large diameter are used in the gear-case, their lubrication being provided for from outside. The aluminum case has a large-size hand hole on top for inspection of gears. The only change in the propeller-shaft and rear live axle is that all driving parts have been increased in dimensions and are now made from imported silico-manganese steel stock, which experience has shown to be more uniform in quality and much stronger than the alloy steels used on 1907 models. Universal joints on each side of the driving gears and connected with the live-axle take up all strain on the axle and prevent any binding of the gears. These universal joints make possible an arch construction, and also permit dishing the rear wheels two degrees, the same as the front wheels. Imported ball-bearings of extra-large size are used for the road wheels. The axle tubes are of heavy gauge and brazed into the cast-steel differential case, and further strengthened by a webbed collar brazed to the tube and bolted to end of differential casing. The spring saddles are brazed to the axle tube. Distance roads from the frame to rear axle on either side are adjustable by means of a turnbuckle, and a torque rod is used from the differential casing to a spring bracket attached to a cross member of the frame.



TRANSMISSION, SHOWING THE REVERSE MECHANISM.

Front Axle and Steering Mechanism.—The front axle is a solid one-piece drop forging, I-beam design, with spring saddles integral, the center of the axle being the lowest part of the car. Steering knuckles in the axle yokes are fitted with special imported ball-bearings of large size, and with an improved oiling arrangement. The steering gear is of the worm and sector type, the sector and shaft being a one-piece solid drop forging. Instead of being placed before the front axle, the connecting rod between steering knuckles is behind the front axle on the 1908 models.



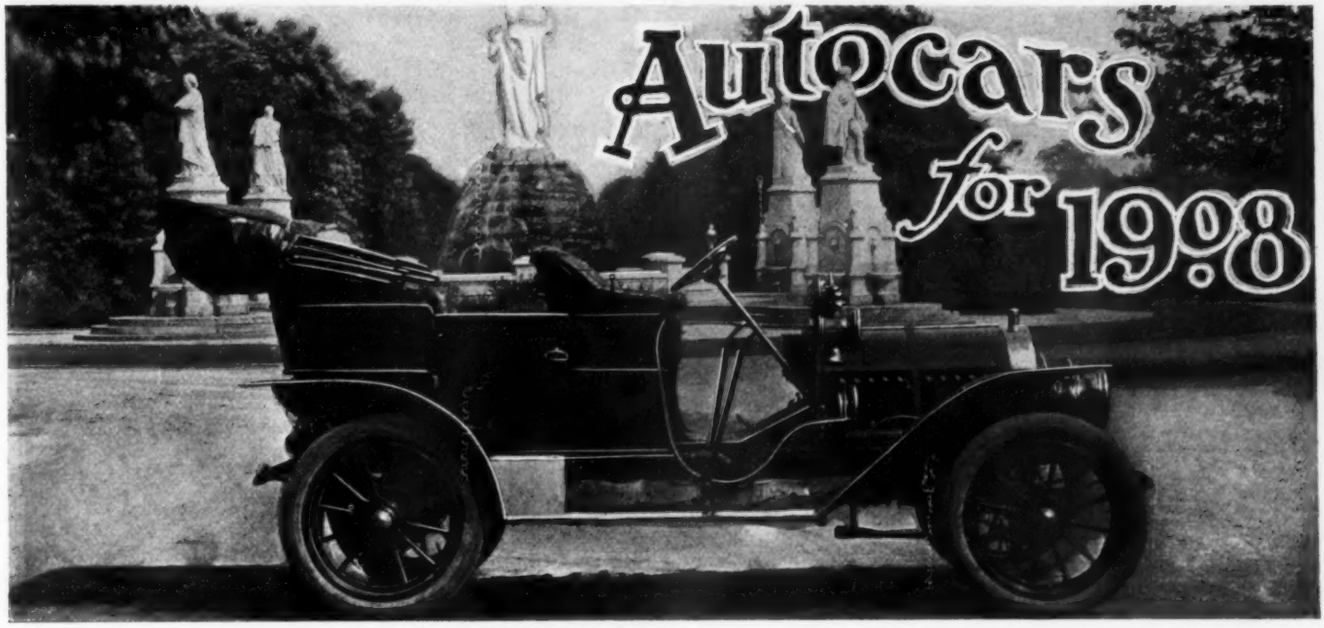
INTERNAL EXPANDING CLUTCH OF THE 1908 PEERLESS.

Frame and Springs.—The cold-rolled steel drop frame, first used on the Peerless Model 15, of 1906, will be continued on all models. The dropping amounts to 2 1-2 inches just in front of the rear axle, and carries the center of gravity of the car nearer the ground without interfering with the road clearance. French Lemoine springs of special silico-manganese steel are used for the semi-elliptics in front and the platform suspension in the rear, and are longer and flatter than those of 1907.

Wheels.—Thirty-six-inch artillery wheels, with dished spokes, are used both front and rear. Four-inch clincher tires are mounted on the front wheels, and 4 1-2-inch on rear.

Model 15.—The 45-horsepower car is similar to the one described, with the exception of cylinder dimensions, being 5 1-4 by 5 3-4 inches and wheelbase 119 inches. It is furnished with limousine body, interchangeable with the standard touring body, or with roadster body, which is not interchangeable.

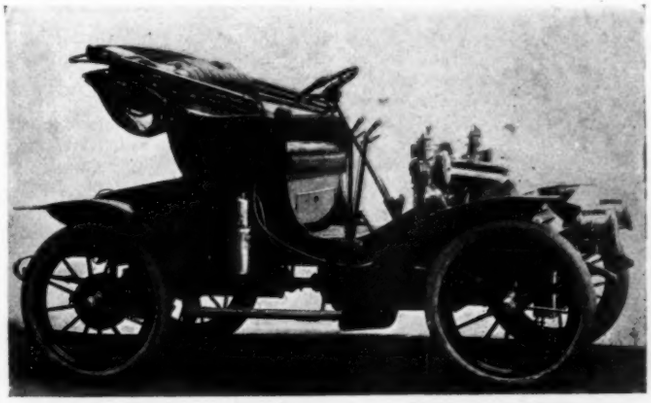
Body and Color.—The body is of Peerless type, king of Belgium lines, the rear seat being wider and the tonneau longer and more spacious, and built to carry seven people comfortably. Small seats of folding type are used, which are practical and comfortable, and which may be folded against the side when not required for use. They are also removable. The standard color will be maroon with coach painter's light red running gear. Other color combinations will be furnished only when ordered special.



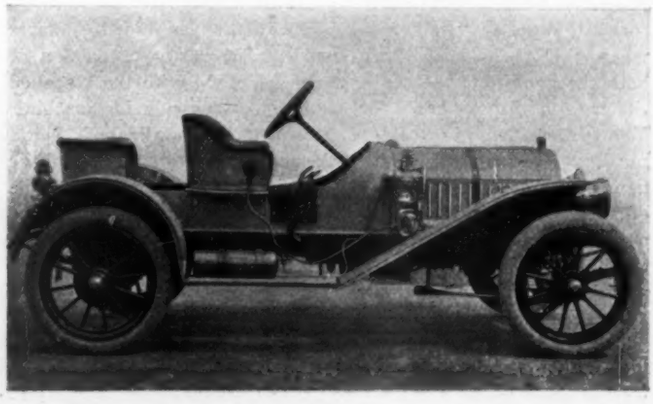
TYPE XIV AUTOCAR TOURING CAR FOR 1908, WHICH HEADS THE AUTOCAR LINE FOR THE COMING SEASON.

TO meet the demand for a high-powered runabout that has become so prevalent, the Autocar Company, Ardmore, Pa., builders of the cars of the same name, have developed a special type which has been given the title of the Autocar "mile-a-minute" roadster, the attractive appearance of which is apparent from the illustration. The standard Type XIV Autocar chassis forms the foundation of the car, but numerous modifications have been made to make the complete car conform more closely to the special use to which it is to be put. The drive is geared higher than on the touring car for obvious reasons, while the control levers have been shortened and moved back, an 18-inch steering wheel being fitted. The bonnet is 4 inches longer, and the mechanical oiler has been placed forward of the dash under the hood instead of being mounted on the former. In other respects the standard features of construction long identified with Autocar practice have been retained. The most prominent of these are the independently cast cylinders, and the three-point suspension of the unit power plant, the motor, change-speed gear and clutch all being contained in a special sectional case of material of high tensile strength, the different parts of which are firmly bolted together and the whole supported as a unit at three points. Two of these are bolted dirctly to the frame forward, making a rigid joint, while the third, situated under the center of the gearcase, is seated on a stiff spring attached to a cross member of the frame. This arrangement eliminates the usual subframe construction and also insures constant alignment of the essentials of the power plant and drive. Both the motor and the transmission are protected from below by means of a metal shield. The regulation equipment has also been extended to include a gas-tank, speedometer and tire holders.

The other members of the Autocar family for 1908 consist of the standard touring car and the two-cylinder runabout, known respectively during the past year as Types XIV and XV. Long experience in the building of these cars has demonstrated the value of the features of construction which they embody, so that there will be practically no radical change in their design for the coming season. Their builders are one of the oldest manufacturers of automobiles in this country, and, moreover, a firm that has consistently adhered to the distinctive design that it has evolved in the course of a number of years of building cars. Minor improvements and detailed additions here and there will be made—in fact, are always being planned in the draughting rooms of every up-to-date automobile plant—and the Autocar will be no exception in this respect, but designs have approached to a standard so closely within the past few years that familiarity with what has preceded is essential to distinguish the changes in new models. The line will also naturally include standard types of covered cars such as a limousine, mounted on the standard Autocar chassis, of which the makers are planning to turn out a larger number than ever during the season of 1908.



THE POPULAR TWO-CYLINDER AUTOCAR TYPE XV.



AUTOCAR "MILE-A-MINUTE ROADSTER"—THE NEWCOMER.

MILAN'S AUTO FIRE ENGINE TESTS.

Vice-Consul Ernest Santi, of Milan, reports as follows on the mechanical progress of that Italian city in fighting fires:

The first automobile fire engine tried in Milan in the year 1901 was a benzine car, 10 horsepower, and was fitted with first-aid material and with places for four firemen. The second trial was made with an American car (the Oldsmobile) of 7 horsepower, for the use of the chief officers, and with a Panhard car for four firemen, which was at first used as a first-aid car, but was then rebuilt into an engine by using the motor of the car when not running for pumping purposes.

In 1905 the fire brigade bought an Orion car of Italian make and fitted it with a piston pump with a delivery of 790 quarts of water, and driven by the motor of the car when not running. These first trials were satisfactory, but their continuance showed that some most important changes would have to be made so as to get a perfect working of the engine.

In 1906 the Milan department bought two large automobiles, Bianchi cars, made in Milan. These two 18 and 24 horsepower cars were intended for carrying the men to fires, but the system was of little value, as the crews arrived so far ahead of the horse engines that they had to remain idle for some time until the slower apparatus arrived. For this reason on one of the cars a small pump was fixed, worked by the motor when the car was not running. An Italian-made pump was built especially for this service so as to fill the smallest possible space, while, being a piston pump, it delivered the water as high as an ordinary fire engine. The pump is 2 feet long, 1 1-5 feet wide, and 1 3-10 feet high, everything included. It has two cylinders coupled together with two connected pistons. The pump weighs 275 1-2 pounds. Starting is effected by the same lever by which the motor is worked. The interlocking mechanism of the wheels during the working of the pump is closed in an aluminum box, with an oil bath, and supported by spherical bearings. The disposition of the pump is such that the car itself did not have to be modified in any way. The handle for the aspirator is on the posterior side, next to the benzine tank, and the handle for the pressure tube is under the right forward seat. The air tube for the pressure mechanism is fixed to a corner of the car.

The maximum velocity of this car on a plain is 44 miles per hour, although as a rule it runs generally at 37 miles, with a cargo of four men, one officer and chauffeur, together with hose and first-aid material. Experiments have shown that the maximum delivery of the pump is about 500 quarts per minute, and the mean delivery 450 quarts.

The Milan fire brigade has also experimented recently with a steam automobile pumping engine bought recently from a firm in Saxony. The chassis, a U-shaped frame, resting on springs attached to the axles, carries the boiler, the motor, and the mechanisms for the propulsion of the car, and for the pump. The rear wheels have a diameter of 3 feet. The front wheels have solid india-rubber tires, while the large wheels have double solid tires. A special friction differential apparatus allows one wheel to go forward and the other to work backwards, to be guided in places where the streets have sharp curves. The motor propulsion of both the pump and the car has two cylinders, with the so-called Stephenson disposition. The pump is a two-cylinder machine. The fuel can be either coal or petroleum, but petroleum is found much more convenient, as the stoker only turns the tap on and the flame is immediately working. The feeding of the boiler can be effected in three ways—by the injector, by a hand pump, and by a special steam pump. There are two water tanks, a small one on the rear of the engine next to the boiler and a larger one under the seat of the chauffeur.

Five firemen and a stoker can be accommodated on the car, which, so laden, can run at a mean speed of 15 1-2 miles per hour, although on a smooth road and with no obstacles in the way of other traffic it has run easily at the rate of 22 miles. Experiments have shown that the car can deliver 950 quarts of water per minute at a sufficient height. The machine when running requires 30 horsepower and the pump 25 horsepower.

The remarkably small brigade, as well as the low fire loss, in Milan, the population of which is nearly 600,000, is explained wholly by the strict inspection laws and by the stone and cement construction required by the laws.

THE AUTOMOBILE CALENDAR.

AMERICAN.

Shows and Meetings.

Oct. 24-31.....—New York City, Grand Central Palace, Eighth Annual Automobile Show, Automobile Club of America and the American Motor Car Manufacturers' Association.

Oct. 26.....—New Haven, Conn., Second Regiment Armory, Third Annual Automobile Show, New Haven Business Men's Association.

Nov. 2-9.....—New York City, Madison Square Garden, Eighth Annual Automobile Show, Association of Licensed Automobile Manufacturers.

Nov. 29-Dec. 6.—Chicago, Casino Garden, Second Annual Auto Parts Show. A. M. Andrews, secretary, 184 La Salle street.

Nov. 30-Dec. 7.—Chicago, Coliseum and First Regt. Armory, Eighth Annual National Automobile Show, and First Annual Commercial Vehicle Show, National Association of Automobile Manufacturers.

Dec. 14-21.....—St. Louis, Mo., New Coliseum, Second Annual Auto Show, St. Louis Automobile Manufacturers' and Dealers' Association.

Dec. 28-Jan. 4..—New York City, Madison Square Garden, Importers' Salon. C. R. Mabley, secretary and manager.

Feb. 3-8.....—Buffalo, Convention Hall, First Annual Power Boat and Sportsmen's Show, auspices of Buffalo Launch Club. Dal H. Lewis, manager, 760 Main street, Buffalo, N. Y.

Feb. 20-Mar. 7.—New York City, Madison Square Garden, Fourteenth Annual Motor Boat and Sportsmen's Show.

Mar. 9-14.....—Buffalo, Convention Hall, Sixth Annual Automobile Show, Automobile Club of Buffalo. Dal H. Lewis, manager.

Races, Hill-Climbs, Etc.

Sept. 28.....—Chicago, Harlem Track, Race Meet, Chicago Automobile Club.

Sept. 27-28.....—New York City, Morris Park Motordrome, 24-hour Race, Morris Park Motordrome Club.

Oct. 4-5.....—Trenton, N. J., Inter-State Fair Automobile Races, Includes 24-hour Event.

Oct. 19.....—Kansas City, Mo., Kansas City Jockey Club Track, Race Meet, Automobile Club of Kansas City.

Oct. 21.....—St. Louis, Mo., International Aerial Race of the Gordon Bennett Prize, Aero Club of America.

FOREIGN.

Shows.

Aug. 1-Sept. 30.—Holland, Amsterdam, International Exhibition of Motors and Machines, Palace of Industry.

Sept. 28-Oct. 7..—Denmark, Copenhagen International Auto Show.

Nov. 11-23.....—London, Olympia Motor Show.

Nov. 12-Dec. 1..—Paris, Exposition Decenniale de l'Automobile, Grand Palais, Esplanade des Invalides, Automobile Club of France.

Dec. 5-22.....—Berlin, Germany, Automobile Show.

Jan. 18-Feb. 2..—Turin, Italy, Fifth International Automobile Exhibition, Palace of Fine Arts, Valentino Park, Automobile Club of Turin.

Races, Hill-Climbs, Etc.

Oct. 1-15.....—Paris, Electric Vehicle Competition, Automobile Club of France.

Oct. 20.....—France, Gaillon Hill Climb.

Nov. 1-15.....—France, Voiturette Contest near Paris.

May 16, 1908....—Sicily, Targo Florio, Automobile Club of Italy.

June 20-July 5, 1908.—Grand Prix, Dieppe Circuit, Automobile Club of France. (Exact date to be announced.)

July 14, 1908...—Paris to London, Aerial Race.

August, 1908...—France, Coupe de la Presse, Automobile Club of France. (Exact date to be announced.)

3-Ton Logan Truck Models for 1908

AFTER a long period of testing under severe conditions, the Logan Construction Company, of Chillicothe, O., completed, about two months ago, a new three-ton truck officially known as Model S. Results were so satisfactory under the trying-out process that the company decided to build another and smaller model, with a load capacity of one ton, to be known as Model T. The two 1908 commercial vehicles being built on similar lines, the smaller truck an exact duplicate in miniature of the larger model, a description of Model S will suffice for both.

Mounted forward on a subframe attached to the 5-inch channel-section pressed steel frame is a 40-horsepower water-cooled vertical four-cylinder motor, with its 4 3-4 by 5-inch cylinders cast in pairs. Valves are all mechanically operated, ignition is by jump spark, and the carbureter is of the float feed type. Seeking to combine extreme simplicity with efficiency, close attention has been paid to cooling and lubrication. The former is provided for by a large size radiator, gear driven pump and fan. The oiler has been cast with the engine crankcase, circulation being assured by a gear pump. Tests have shown a high efficiency combined with great economy in the matter of lubrication of these trucks.

Transmission, an important factor in any mechanically operated vehicle, is of vital importance in the life of a heavy load carrying truck and has rightly been given the attention it needs by the Logan Construction Company. First in the line is a multiple disc clutch, the casing of which is cast integral with the flywheel, and is absolutely oil-tight. A propeller shaft with two universal joints transmits the power to the gear set by which three forward speeds and reverse are obtained on the selective principle. From the countershaft to the rear wheels the drive is taken by side chains of 1 1-2-inch pitch and 3-4-inch width. Krupp chrome nickel steel is employed throughout for the gears, which are of 6-inch pitch and 1 1-4-inch face. Timken and Hess-Bright bearings with ample adjustments on each part play an important part in the efficiency of the transmission. The heavy side chains are guaranteed to stand a strain of 60,000 pounds each, and the makers claim that one set will give good service for at least two years.

Engine control is by spark and throttle levers mounted on the steering column. All gear changes are obtained by a single lever at the right of driver's seat, the emergency brake lever is equally accessible, and clutch and running brakes are operated by foot pedals. To simplify gear changes the clutch and propeller shaft are automatically braked on the operation of the foot clutch or the emergency lever. The capacity of the gasoline tank is fifteen gallons. Security is assured by five brakes, one set on the rear hubs, one set on the jack shaft and one brake on the clutch. Steering is of the worm and nut type.

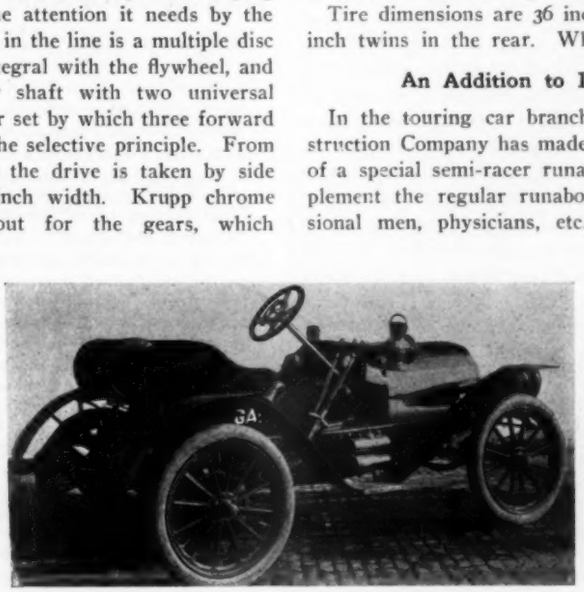
Front and rear axles have been designed with an ample margin of strength above the heaviest load capacity of the vehicle. The rear axle is of solid steel, 2 1-2 inches square, with integral spring seats. Large Timken roller bearings are used for the road wheels and for the steering knuckles. The long I-section radius or reach roads, plainly shown in illustration, are a feature which will be appreciated.

Suspension is such a vital factor in the life of both machinery and tires that no conscientious builder can afford to neglect it. The Logan Construction Company has adopted full elliptic springs forward and platform type of suspension in the rear. With eleven leaves 5-16 inches by 2 1-2 and 38 inches long for the front set and twelve leaves 5-16 inches by 3 inches in the rear, the life of tires and engine should be prolonged to the maximum.

Tire dimensions are 36 inches by 5 inches in front and 3 1-2-inch twins in the rear. Wheelbase is 108 and tread 60 inches.

An Addition to Logan Runabout Family.

In the touring car branch of their business the Logan Construction Company has made an interesting addition in the shape of a special semi-racer runabout. This vehicle, which will supplement the regular runabout designed for the use of professional men, physicians, etc., is equipped with a 20-24-horsepower air-cooled motor. It is constructed along the same lines as the regular Blue Streak runabout which has made such a good record for itself, and, as will be seen from illustration, is of a pleasing, racy appearance. Features of the regular Blue Streak, which will be continued, are four-cylinder, air-cooled motor, sliding gear transmission, shaft drive, and jump spark by storage battery. Total weight is 1,587 pounds.



THE NEW LOGAN AIR-COOLED SEMI-RACER ROADSTER.

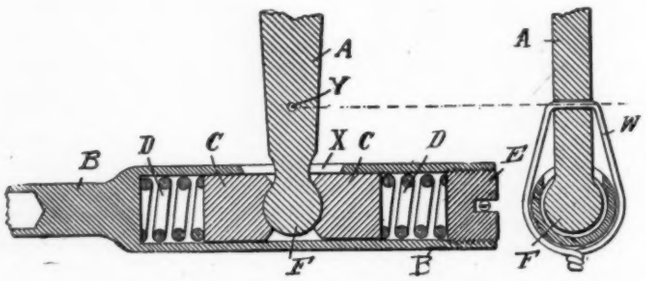
A CRITICISM OF STEERING GEARS IN GENERAL USE*

By LOUIS T. WEISS, Chairman Technical Committee L. I. Automobile Club.

AN unusual number of automobile accidents have occurred recently, and in most cases we read that the steering gear broke, or that the car, when going at high speed, became unmanageable, or the driver lost all control of his car, or the car first headed for one side of the road and then for the other, finally landing upside down in a ditch, or succeeded in smashing itself to pieces on a stone wall, tree, telegraph or other pole. In most of these cases one or more lives were lost. There can exist but little doubt that the statement, "that the car became unmanageable," is correct in many of the sad occurrences.

Your committee has had no opportunity to examine any cars after accidents had taken place, and if such opportunity had presented itself, we would have proved of little value since the cars are mostly a general wreck. The survivors, if any, will surely not care to rehearse all the details if they knew them, of such a calamity where perhaps their dearest ones were crushed to pulp, or torn to pieces.

We have examined and considered the steering gear now in general use, and believe that it is certainly deplorably faulty. It is surprising that the manufacturers furnish such a mechanism



DETAILS OF COMMONLY USED TYPE OF CONNECTION.

when they well know what must result on its breaking down while in use. The kind of steering gear which we speak of consists of the hand wheel, worm gear or nut movements, which causes the steering crank to swing in a vertical plane. This crank is connected to the steering knuckle by means of a reach or connecting rod swinging in a horizontal plane. To this rod, of which we show the principle by sketch herewith (sketch shows one connection only, the other is similar) we wish to draw your serious attention.

Since the steering crank A moves in an arc of a vertical plane, and the steering knuckle (not shown) in an arc of a horizontal plane, it is necessary that the connecting rod B be so made as to allow for up and down, and at the same time sidewise or lateral, motions at each end. A convenient and nice way to accomplish this is to have the ends of both cranks ballshape, shown at FF in sketch. The sockets CC partly encircle the ball end F of crank A. The springs DD exert a pressure tending at all times to keep the sockets CC in close contact with ball F. The nut E in some cases enters the tube B as shown, and in others, screws around the outside of that tube. In nearly all cases the tube is of about one-third the thickness shown on the sketch.

This tube generally has an oblong hole cut into its side large enough to allow the ball end, together with the two sockets, to move freely and longitudinally in the tube B, thus forming a yielding and playless connection between the crank A and the steering knuckle. A yielding connection is very desirable, since it prevents snapping off of the steering knuckle, as well as lengthens the life of the irreversible steering mechanism proper.

Now let us see where we can justly criticize it.

*Paper read before the Long Island Automobile Club.

The mechanism proper, such as the worm and gear, or the nut and thread, as well as the steering knuckles, are generally very well proportioned and well made. With the reach rod, which is just as important as the rest, it is different. When assembling, the ball F is entered through opening X, and surely can come out the same way if the sockets CC open. Then the rod B will fall to the ground, and all connections between the hand wheel and the front wheels of the car are broken. You are absolutely at the mercy of fate. Your car runs wild. The sockets CC will open when either of the springs break, and break they will, as the writer has personally removed one spring in three parts.

It is true that some makers of cars make the opening buttonhole shape, and others slit it all the way out to the end, so that the ball can only be entered from the end, or through the large part of the buttonhole opening, and, when in place, these are covered or closed by a nut or cap, which at the same time answers the purpose of compressing the springs, as does E in the sketch. We have then an opening through which the ball cannot pass and the rod cannot drop off. We have examined such connections and found some where the thin wall of the tubing had been worn so large that the ball passed through easily. Others were so that the blow of a fist forced the rod off.

In the sketch we show a primitive, but quite an effective way to prevent the dropping of the rod if the springs should break so that your car will not run wild. The writer has taken such precaution ever since he has run cars, and has, as before stated, removed one spring in three pieces. After the break the wheels wabbled quite some, but the car could still be steered.

We do not recommend this particular method of drilling a hole and drawing a wire through it and around the tube B in all cases, since some steering cranks and knuckles would be weakened too much by the hole. But we do believe it to be a very wise precaution to fasten the parts either by wire or other means, so as to prevent the reach rod from falling, jumping or being jerked out of connection if the sockets CC should separate.

Some, and perhaps many, will say, "I have driven my car for two or three seasons, at high speeds, too, and I have never had any such trouble," but we should remember that one experience will be just once too often, and it is likely that we will not live to tell the tale.

THOUSANDS OF AMERICAN AUTO PARTIES ABROAD

Consul R. E. Mansfield, writing from Lucerne, Switzerland, says that it is estimated that there are now in Europe 8,000 American touring parties in automobiles. He adds:

Each car carries on an average five persons, making a total of 40,000 Americans autoing on the Continent. The expense will average $10 per day for each person, making a daily expenditure by this class of American travelers in Europe of $400,000. The American motorist usually spends two months on the Continent, which brings the aggregate expenditure up to $24,000,000 for the season. So great is the number of American automobiles on the Continent that the transport of motors across the Atlantic has become a regular and specialized business. A properly equipped touring car is a private train and yacht combined. The traveler can go north, south, east, or west, when he wishes, stop as many days as he wishes at one point, and has no need to worry about tickets or luggage. Motor tourists on the Continent are brought much more into touch with national life than the railway traveler, who, passing through Europe on a train de luxe, from one hotel de luxe to another, finds all Europe alike, sees nothing of national costume or habit, and hears little except his own language.

The great interest in motoring in all parts of the world, and especially in using automobiles as a means of travel as well as pleasure by Americans in Europe, will furnish additional stimulus to the trade and an incentive to American manufacturers to meet the demand for and compete with the continental manufacturers in the world's markets for high-grade touring cars.

WHAT THE AUTO CLUBS ARE DOING JUST NOW

THE NEWS FROM WORCESTER, MASS.

WORCESTER, MASS., Sept. 23.—September 25 is old home day at Bellingham, Mass. This is a little town on one of the routes between Providence and Worcester, and its officials have succeeded in getting a State highway right through it. There is now but one section of this route where there is no State highway. That is between Worcester and Grafton, and members of Worcester club and others in Milford, Hopedale, and the vicinity towns, headed by William H. Baker, of Milford, want a gathering of motorists at Bellingham to show the appreciation of the good roads there and to stir up a sentiment for the completion of the route with the State highway.

September 27 the contests and tours committee of the club has called an informal run to Barre. It is the last day of the annual fair of the Worcester County West Agricultural Society, and a good show and a good time are promised by the management of the fair for the members of the club. A delegation of Worcester motorists will attend the Valley fair, at Brattleboro, Vt., September 25. There will be Worcester competitors in the automobile parade there.

Plans are being talked up between the Worcester Automobile Club and Rhode Island Automobile Club, of Providence, for a joint gymkhana. At present the prospects are good for a gymkhana and other stunts at Providence this fall with teams from both clubs participating, and a return event under similar conditions at Worcester next season. President John P. Coughlin, of the Worcester Automobile Club, is taking a two weeks' vacation in Nova Scotia and New Brunswick.

L. E. MYERS NOW PRESIDENT ILLINOIS STATE A. A.

CHICAGO, Sept. 23.—L. E. Myers, delegate from the Chicago Automobile Club to the annual meeting of the Illinois State Automobile Association, has been elected president of that body, succeeding Sidney S. Gorham, the retiring chief executive, Samuel P. Irwin, of Bloomington, George W. Ehrhart, of Decatur, and R. M. Baker, of Springfield, were elected as vice-presidents. John Farson, treasurer, and W. H. B. Weston, secretary.

The new directorate consists of Ira M. Cobe, John Farson, L. E. Myers and Sidney S. Gorham, Chicago Automobile Club; R. M. Baker, Springfield; G. W. Ehrhart, Decatur; S. P. Irwin, Bloomington; H. A. Olson, Woodstock; J. H. Francis, Austin; R. A. Whitney and B. C. Hamilton, Chicago Motor Club.

PORTLAND TO BAR YOUTHFUL DRIVERS.

PORTLAND, ORE., Sept. 19.—That no person under the age of eighteen years shall be permitted to drive an automobile on the streets of Portland is one of the provisions of a new ordinance adopted by the special committee of the Common Council for favorable report to that body, after consultation with representatives of the Portland Automobile Club, which is a unit in endorsing the new regulation. Boys and girls driving machines have been a common sight here, but after the ordinance is passed they will have to be accompanied by their elders. Another regulation adopted with a view of minimizing chances of accident is that automobiles must not pass between the curb and a street car that has stopped to take on or discharge passengers.

GENEVANS TO INCREASE ROAD-SIGN FUND.

GENEVA, N. Y., Sept. 23.—At the last meeting of the Geneva Automobile Club it was voted to increase membership dues to $4 per year, with the view of increasing the funds for placing additional road signs in the vicinity. A danger sign has been placed at Bean's hill, which is a bad spot for automobilists unacquainted with the territory.

A. C. A. INSIGNIA FOR MEMBERS' CARS.

NEW YORK, Sept. 24.—A committee of the Automobile Club of America, consisting of Melville D. Chapman and Dr. Schuyler Skaats Wheeler, has brought out a club plate that can be attached either to the dash or radiator of members' cars. These plates, which are about three inches square, are made of brass, with the words "The Automobile Club of America" at the top of the plate. In the center is the club flag enamelled in colors on a black background, while at the bottom is a serial number. In a circular letter to members the committee, in advocating the use of the new device, says:

> The plates will be useful in several ways. They serve as a means of identification and as proof of membership in the club. They may be useful in dealing with supply houses on the road, and also possibly as a means of identification in case of trouble. It is, therefore, obviously necessary that members should agree to be responsible for the custody of the plates, and to remove them from their cars if they allow the cars to leave their possession and ownership, and return them to the club in case they cease to be members of the club, or upon demand, and in accepting the plates members will do so subject to the right of the club to retake its property wherever found, in the event that it is not returned as agreed.

SANTA BARBARANS TOIL TO IMPROVE THE ROADS.

SANTA BARBARA, CAL., Sept. 18.—Impatient at the tardiness of the County Supervisors in making passable the roads leading out of the city, a dozen members of the Santa Barbara Automobile Club, armed with picks and shovels, and conveyed in three autos, sallied forth last week and did yeoman service in improving the Gaviota road. Some weeks ago volunteers from the club did the trick for the El Capitan road, going over twenty-five miles of rock and chuck holes and making a fairly decent roadbed. Despite the hot sun the learned professions vied with each other in the application of muscle, led by Clio Lloyd, candidate for Mayor of Santa Barbara, who swung his pick with great dexterity and effect. After the road had been voted to be in excellent repair, the "laborers," with their wives and friends, enjoyed a picnic beneath the spreading oaks in the Rincon Canyon.

FIRST RACE MEET IN THE OHIO VALLEY.

WHEELING, W. VA., Sept. 23.—Plans are maturing for a mammoth race meet to be given on the State Fair Grounds, near Wheeling, by the Ohio Valley Automobile Club. Arrangements are being perfected under the direction of Secretary T. A. Westmyer, although auto owners all along the Ohio Valley are becoming interested.

Auto owners from down the Ohio river as far as Marietta and Parkersburg, W. Va., will take part in this event. This will be the first event of the kind to be held in the Ohio Valley, and because of this great interest is being shown. Committees will be selected within a fortnight, after which dates for the race meeting will be decided upon.

RECENT AUTO CLUB ELECTIONS.

SAN ANTONIO, TEX.—H. E. Ogg has been elected president of the San Antonio Automobile Club to succeed Henry Crawford, who recently died. The club is making active preparations for a number of long runs throughout the State during the winter, which is the finest season of the year for autoing here.

LINCOLN, ILL.—At the annual meeting of the Lincoln Automobile Association held last week the board of directors was enlarged from three to six members. The membership of the board for the ensuing year is L. W. Walker, E. L. Edwards, C. L. Hyde, B. F. Coffman, K. L. Hyde and G. F. Phillippe.

THE AUTOMOBILE

Vol. XVII Thursday, September 26, 1907 No. 13

THE CLASS JOURNAL COMPANY,

Flatiron Building, Madison Square
New York City

H. M. SWETLAND, President

EDITORIAL DEPARTMENT:
A. G. BATCHELDER, Managing Editor
R. F. KELSEY, Associate Editor C. B. HAYWARD, Engineering Editor
W. F. BRADLEY

BUSINESS DEPARTMENT
A. B. SWETLAND, Business Manager
LOUIS R. SMITH FRANK B. BARNETT
W. I. RALPH, 1035 Old South Building, Boston, Mass.
C. H. GURNETT, H. E. WESTERDALE, 836 Monadnock Block, Chicago, Ill.

Cable Address - - - - - - - - - - - Autoland, New York
Long Distance Telephone - - - - - - - 300 Gramercy, New York

SUBSCRIPTION RATES

United States and Mexico - - - - - - - - - - One Year, $2.00
Other Countries in Postal Union, including Canada - - - One Year, 3.00
To rubscribers—Do not send money by ordinary mail. Remit by Draft, Post-Office or Express Money Order, or Register your letter.

FOREIGN SUBSCRIPTION AGENTS:
ENGLAND:—Iliffe & Sons, Limited, 20 Tudor Street, London, E. C.
FRANCE:—Boyveau & Chevillet, 22 Rue de la Banque, Paris.
GERMANY:—A. Seydel Mohrenstrasse 9, Berlin.

Copyright, 1907, by The Class Journal Company.
Entered at New York, N. Y., as second-class matter.

The Automobile is a consolidation of The Automobile (monthly) and the Motor Review (weekly), May, 1902, Dealer and Repairman (monthly), October, 1903, and the Automobile Magazine (monthly), July, 1907.

Copies printed in 1905,	- - - - - - - - - - - -	730,000
" " in 1906,	- - - - - - - - - - - -	791,000
" " This Issue	- - - - - - - - - - -	17,000
" " Since January 1,	- - - - - - - - - -	638,650

Whence the Lack of Interest in Commercial Vehicles? From an economic point of view there is nothing about the automobile industry in this country as a whole that strikes the observer so forcibly as the almost total lack of general interest in the gasoline-driven commercial vehicle. Comment on the subject is opportune at a time when extensive and widely advertised competitions are being held in both England and France. There has been an event of this nature held here, which need not be characterized, and another abortive attempt to second it which came to worse than nothing, as it placed the commercial vehicle further behind, at least where New York City is concerned, than if the matter had been allowed to sleep in peace, as it has done since. That there is a vast field for the commercial vehicle goes without saying, but even granting its great superiority over present methods, the fact must be recognized that the prospective users of such vehicles are in the same position as the steam railroads where electric traction is concerned. They have on hand many thousand dollars' worth of costly equipment which cannot be scrapped simply because there is something better. The value of the horses and wagons operated by express companies, for instance, would reach a tremendous figure and the same thing is true of other large users.

Progress must necessarily be slow, but something could certainly be done to hasten the advent of the commercial vehicle, at least at a slightly faster rate than has characterized its advance up to the present. There are a great many vehicles in daily use and a great many more being built, but the trouble is so little is heard of them and they are so few compared to the vast bulk of other traffic that very little is seen of them. Publicity is what the commercial vehicle needs more than anything else, but unfortunately it is overlooked and little or nothing heard of it in the din and clamor with which the pleasure vehicle is constantly surrounded. The market for the two is not as widely separated as might appear at first sight, for it is frequently the business man's experience with his car that leads him to investigate the possibilities of automobile delivery and heavy haulage. It would do a great deal of good, not alone to a special class of makers, but to the industry as a whole, to give the commercial vehicle side a little more attention.

✷

A Weak Point in Most of the Repair Shops. Why, when a repair man takes an automobile for a complete overhauling, does he so frequently neglect to tune it up to its highest degree of efficiency? The question has been forced upon us by a number of cases in which a car, after coming out of the hands of the repairer, was in an apparently worse condition than when it entered his establishment. We are not here referring to the automobile butcher, whose attentions cannot be otherwise than injurious to any piece of mechanism, but to first-class firms with experience, an efficient staff, and such modern machinery as to inspire confidence. At the commencement of the touring season the owner ships his car to such an establishment, giving instructions for a complete overhaul of engine and transmission. Too frequently he is disappointed and disgusted on the first run to find the engine pulling badly, not because of any material defects, but owing to lack of attention to such minor matters as ignition and carburetion. The trouble lies in the fact that the work has been done by a shop mechanic with little experience on the road. Running an engine light in the repair shop is not sufficient to guarantee it being in condition to operate satisfactorily on the highway. Fear of accidents and the lack of suitable roads in the neighborhood may be primarily responsible for the substitution of a shop tuning up for a thorough road test. In any case it is dissatisfying to the owner and injurious to the reputation of the repair man that a machine fresh from an overhauling should need to have the carbureter cleaned out, throttle adjusted, commutator attended to and sundry bolts screwed up. Twenty miles on the road, with a skilled tester at the wheel, would have caused all such defects to be brought to light and remedied.

✷

New York: The World's New Center of Automobiling. Wandering around upper Broadway, Fifth avenue, and other portions of New York where automobiles most congregate, the man who has the time for such dilletantism cannot but be struck by the fact that the metropolis of the United States is becoming more and more the rendezvous of all types and nationalities of horseless vehicles. Registration tags at the rear of the ubiquitous machines tell an interesting story to those who care to read them. During the past few weeks might have been noticed, in addition to the familiar official registration numbers of New York and New Jersey, tags from every State in the Union which has thought fit to busy itself with registration. Foreigners, too, had their peep in with cars carrying the E, G, and I, of Paris, and the LC, of London. The British Automobile Association's road badge occupied the position on one visitor's car which some Broadway habitués prefer to give to a more homely mascot. The thought suggests itself: Will the tag habit, from which the handbag traveler has always suffered, make itself felt among automobiles and worry the bicycle policeman as the railroad porter is now worried? A chair in the Champs-Elysees, Paris, used to be declared to be the best spot in the world to witness a meeting of automobiles from all parts of the globe. The vantage point seems to be moving a few thousand miles westward.

FIRST GOOD ROADS AND GOOD LAWS CONVENTION

SPRINGFIELD, Mass., Sept. 24.—A pronounced success and the forerunner of others that will follow and assume even greater national proportions was the good roads and legislative convention of the Automobile Club of Springfield, held all day in Cooley's Hotel, and concluding in the evening with an enthusiastic banquet. So well did the brilliant idea find accord that the A. A. A. national officers present conferred with the local officials and these resolutions resulted from the morning session, which was devoted to good roads:

Resolved, that the subject of the best material for surfacing roads be referred to the Good Roads Board of the American Automobile Association, with the request to investigate and report at the next convention.

Resolved, further, that the American Automobile Association be requested, either as an association or through one of its clubs, to call a convention on Good Roads and Legislation in the summer or fall of 1908.

Stanford L. Haynes. Lewis R. Speare.
William H. Hotchkiss. Robert P. Hooper.
Dr. A. S. Cushman.

The actual results of the convention as a whole, so far as any definite action was concerned, found nearly complete expression in the foregoing set of resolutions, and those discussed later in the day, but not reproduced here for lack of space; both were adopted by the convention unanimously. The first were approved following the discussion of the morning, which was restricted to the subject of "Good Roads," and the second set after the afternoon session, when the question of "Automobile Legislation" was the theme. Following the spirit of the first resolutions, which provided for a similar convention next year, it was practically agreed that the next convention, which will be called in the fall of 1908, will be held in Buffalo.

Results of the Morning Session.

The morning session was opened by Mayor William E. Sanderson, of Springfield, and the delegates were further welcomed by H. H. Bowman, president of the Board of Trade. W. L. Dickinson, vice-president of the New York and Chicago State Roads Association, was the first speaker, and he discussed the value of trunk systems of roads between States and their value to the consumer and the farmer.

William E. McClintock, of Massachusetts, asserted positively that the automobiles have been and are working damage on the State highways incommensurate with their number, as compared with other sorts of vehicles, and defended the method adopted this year by the Massachusetts Legislature at the recommendation of the State Highway Commission, of a re-registration of the automobiles and the application of the proceeds from the fees to improvements in the State's highways.

Dr. Cushman made his main plea for good roads on the ground that they bring about an esthetic development in the people who use them. He explained the value of the department which he represented to farmers with limited means who want to know how to make their money count for the most, and to whom the bureau is able to give just the information desired.

Commissioner Edwards, of Rhode Island, suggested a treatment for the roads which he declared possessed everything desired for the new road, but which apparently was too costly for the average State. The treatment consisted of a new surface of several inches depth of stone and tar, with an exterior coating of tar and then the surface layer, also permeated with the tar.

Mr. Hooper, as a member of the national association, took exception to the statements of the Highway Commissioners and declared that it was yet to be proven to his satisfaction that the automobile injured the roads more than the ordinary vehicle. He believed the solution to the problem lay, however, in a co-operation on the part of the autoist and the roadmaker.

Judge W. H. Hotchkiss, president of the American Automobile Association, delivered an address that was concise and convincing, making an evident impression on his hearers. After discussing the manner in which the rights of the autoist under the State law may be affected by the police power in the placing of fair restrictions on automobilists, he continued in part:

"It is an old saying that the legislator has his ear close to the ground, and at present there is not the slightest doubt that our legislators are inclined to be responsive to waves of prejudice. This condition is a menace to the rights of the automobilist as a citizen. We are going to stop the tax on automobile traffic as it is enforced in certain localities, and we are going to do it by Federal legislation. There are prejudices prevailing against the automobilist, and they are due somewhat to the envy of those who haven't, for those who have. At any rate, the sane use of the roads by the automobilist is the only way to conquer those prejudices. Racing on circular tracks, the dangers attendant thereon and the sensational reports that the resulting accidents give rise to in the newspapers, serve to stimulate prejudice. During my administration as head of the American Automobile Association, I intend to do away with racing on the highway without the taking of proper precautions. Not 2 per cent. of the owners of automobiles drive other than sanely, but when it comes to the foreign chauffeurs which you have in New York City, I don't believe that there is 2 per cent. of that class that do drive sanely. There is at present a chaos of motor laws in the several States, and we need Federal law to make legislation uniform. Automobile travel from one State to another is commerce, and as such should have Federal supervision. The national association has prepared a bill providing for national registration, which it will push before the next session of Congress, and another calling for uniform speed laws and penalties."

Done at the Afternoon Session.

James H. McDonald, of Connecticut, declared himself in favor of the registration system of raising money for State roads and declared that the matter had been put up to the Connecticut autoists and that they had fully agreed with the Highway Commission that it was just and efficient.

William P. Hayes gave an exhaustive account of the Massachusetts automobile legislation, and Congressman Gillet, in a discussion of national legislation, asserted that in his belief Federal laws governing automobiles were not likely to prosper when pushed by automobile clubs owing to prevailing prejudices.

Following the afternoon session, at the suggestion of W. Clive Crosby, delegate from the New Jersey Automobile and Motor Club, a second committee was appointed to endorse the views of the convention as expressed in the discussion of the afternoon, which were confined more to the legal aspects of the automobile problem. The committee consisted of Judge Hotchkiss, Dr. Cushman, Robt. P. Hooper, William E. McClintock, chairman of the Massachusetts Highway Commission, and Arthur E. Corbin of the local club, and the set of resolutions were submitted to the committee and endorsed by a standing vote of the convention at the banquet last night.

Over Two Hundred Present at Banquet.

More than 200 covers were laid at the banquet held in the evening at Cooley's Hotel, and the function proved as notable as the business session of the day. Colonel C. L. Young, chairman of the banquet committee, facetiously introduced the Hon. Charles W. Bosworth as toastmaster of the occasion. The speakers included Dr. V. J. Irwin, president of the Automobile Club of Springfield; Congressman F. H. Gillett, of Springfield; Colonel A. P. Langtry, editor of the Springfield *Union*; Dr. Harvey Martin; L. R. Speare, first vice-president of the A. A. A.; Judge W. S. Kellogg, of Westfield; A. G. Batchelder, editor of THE AUTOMOBILE; Frank B. Hall, Worcester Automobile Club; E. H. Lathrop, of Springfield, and Robert P. Hooper, chairman of the A. A. A. Good Roads Board, who introduced a resolution of thanks on behalf of the visitors for the numerous courtesies extended during the entire course of the convention.

SIX-CYLINDERS AT THE GARDEN SHOW.

Predictions of the coming of the six-cylinder in 1908 will begin to materialize in tangible form at the coming Garden show of the Association of Licensed Automobile Manufacturers, to be held from November 2 to 9, as it is now known that no less than eleven cars of this type will be staged. They will range in horsepower from 42 to 70, and as they will all be rated under the new A. L. A. M. formula there will be some odd figures, such as 48, 46.6, 43, 45, 51 and the like, the cylinder bores ranging from 4 1-8 to 5 inches. The minimum price is $3,500 and the maximum $6,500, the former being represented by the familiar Stevens-Duryea "Little Six" of 35 horsepower, officially known as Model U, and the latter by the 60-horsepower Pierce-Arrow. Between these two extremes there is the Franklin 42-horsepower, air-cooled, six-cylinder car, the only one of its type in the show, listing at $4,000; the 48-horsepower, six-cylinder Oldsmobile, listing at $4,200; the Winton "Six-Teen-Six," recently described in THE AUTOMOBILE, and listing at $4,500, and the two Pierce-Arrow "sixes" of 43 and 60 horsepower, respectively, and listing at $5,500 and $6,500. No less than six of this new multi-cylindered type are listed at $6,000. These are the 45-horsepower Apperson, the 70-horsepower Stearns, the 51-horsepower Lozier, the 60-horsepower Thomas, the 50-horsepower Stevens-Duryea, and the Peerless. All of them will be made in both runabout and touring car types and there will be a sprinkling of both at the show, so that the six-cylinder will doubtless come into its own with a great flourish.

QUAKER CITY ANNOUNCES ITS SHOW DATES.

PHILADELPHIA, Sept. 23.—The local Automobile Trade Association got busy last week and took the first step toward holding the annual show by selecting a date. After much discussion it was decided to open the show on Saturday, November 9, and continue it till the following Saturday. Following immediately upon the New York shows, and previous to that at Chicago, the association managers believe that they will secure a large number of exhibits from the Gotham exhibition. No decision was made as to where the show is to be held, the dearth of big buildings in the heart of the city, as usual, necessitating the crowding of the show into some one of the utterly inadequate armories.

President W. F. Smith on Saturday announced the following show committee: George H. Smith, manager of the local White Company branch; Edward Leeds, of Titman, Leeds & Co., Studebaker and Matheson agents; E. H. Fitch, of the Diamond Rubber Company's local branch, and Fred Vanderhoef, manager of the Ford branch. J. H. Beck, whose work as secretary last year was so favorably commented upon, again consented to act in that capacity, so that the success of the show may be considered as assured in advance. Every effort will be brought to bear to make it the biggest thing of its kind the Quaker City has ever seen, despite the great lack of suitable accommodations.

DATES FIXED FOR CANADIAN SHOWS.

MONTREAL, Sept. 21.—Manager R. M. Jaffray announces March 21 to 28 as the date of the Toronto automobile show, to be held in the St. Lawrence Rink, and April 5 to 12 for Montreal's exhibition in the Arena. To date, the number of applications for space for the Montreal show far exceeds those of last year, and everything points to a bumper show.

APPLICATION BLANKS OUT FOR BUFFALO SHOW.

BUFFALO, N. Y., Sept. 23.—The sixth annual automobile show under the auspices of the Automobile Club of Buffalo will take place in Convention Hall during the week of March 9 to 14, 1908. The plan of floor and application blanks will be ready in a few days. Dai H. Lewis, secretary of the club, will have charge of the show, as usual.

BEARINGS DISCUSSED BY A. L. A. M. ENGINEERS.

Ball bearings for use in motors constituted the subject taken up by the Mechanical Branch of the Association of Licensed Automobile Engineers at its meeting in New York City on Monday last. The use of anti-friction bearings has become almost universal in other parts of the car, such as in the gear-set and the wheels, but ball-bearing motors have been turned out by comparatively few makers up to the present. Papers on the subject were read by Frank Stearns of the F. B. Stearns Company, E. T. Birdsall of the Selden Motor Vehicle Company, and E. R. Hewitt of the Hewitt Motor Company. This subject occupied the entire morning session and it was the consensus of opinion that in view of the great advantages of the ball-bearing over plain types it must sooner or later become standard for all high-grade construction. The elimination of the plain bearing marks a tremendous step forward in motor design, owing to the fact that it permits of the building of shorter motors, eliminates journal friction, reduces the complication of lubrication systems considerably and assures the highest efficiency by its absolute simplicity and absence of wear. The last-named is far from being the least of its advantages, as it does away with the greatest bugbear of the automobile user—loose bearings—and the consequent pounding and loss of efficiency that they entail. It is almost impossible to improperly assemble a ball bearing, and, once in place, there is no tedious process of fitting and adjusting necessary, as is the case with the plain bearing.

At the afternoon session, the report of the Tire Committee was taken up, the particular subject being a two-part detachable rim. Following this, the report of the Test Committee on engine tests was read and proved of great interest. These tests were made on a Thomas Detroit motor at the Hartford laboratory of the association, and it was clearly shown that considerable of the depreciation in power of a motor was due to the friction of the piston rings. Suggestions were made looking toward the elimination of this objection and a discussion of general interest resulted.

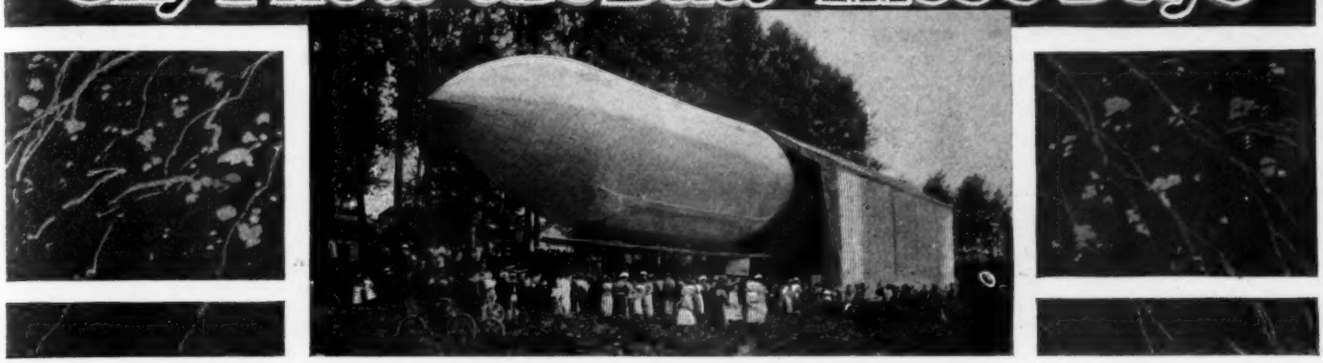
AUTUMN EFFECTS TO DECORATE PALACE SHOW.

In looking about for a motif for the decorations of the combined show of the Automobile Club of America and the American Motor Car Manufacturers' Association and Motor and Accessory Manufacturers, Inc., to be held in the Grand Central Palace in New York, October 24 to 31, the decorators have looked to nature for a setting and will endeavor to create an out-of-doors effect in keeping with the usual environment of the automobile by the liberal use of autumn-colored boughs and leaves banked up against the columns, panels and balconies to form a background for the cars. The number of the latter exhibited will form a startling revelation of the wonderful progress of the American industry, as out of a total of 246 exhibitors no less than 70 will show complete cars.

MOTOR LEAGUE ACTIVE IN NEW JERSEY.

A State board of officers of the American Motor League is being formed in New Jersey preparatory to the organization of a State division of the league there. Up to the present, 61 members have already been appointed as representatives and other appointments to complete the board will be announced shortly; a chief consul, vice-consul and secretary-treasurer will be named and the complete board convened to complete the work of organization. In organizing the New Jersey State division, the twenty-one counties have been divided into seven districts, each of which will be entitled to a number of representatives proportionate to the membership roll of the league in that district. The work of the new division will be most strongly directed toward securing better legislation, and the number of autoists in New Jersey makes them so important a factor politically that President Potter is confident they can make their influence felt.

Sky Pilots are Busy These Days



WAITING EXPECTANTLY FOR THE FIRST FLIGHT OF MALECOT'S AIRSHIP.

PARIS, Sept. 16.—Malecot's combination balloon and aeroplane, slightly heavier than the air, is at present the feature of interest in the French aeronautical world. An accidental fouling of the propeller during the preliminary trials near Meaux has postponed the public tests indefinitely. The main gas vessel, 108 feet in length, has pointed ends and a maximum diameter of 23 feet. Within it is a small auxiliary ballonet, which is filled with air by means of a fan, thus compensating for any loss which may take place from the gas. Below the main gas vessel is a longitudinal openwork girder carrying transverse spars supporting the fabric of the aeroplane, 65 feet in length, and having an area of nearly two hundred square feet. Below this is a cage carrying the Buchet engine driving a single propeller, and beneath this again a basket for the passengers.

Santos-Dumont has decided to fit a three-bladed propeller in place of the two-bladed one formerly used on his aeroplane.

Balloon evolutions above Paris are becoming of such common occurrence as hardly to call for comment. As soon as the army steerable was called in, M. Henri Deutsch de la Meurthe's *Ville de Paris* began evolutions. One of the most successful trips was made this week. Coming out of its shed at about 9 A.M., the balloon evolved above the plain of Sartrouville, descended, changed some of its passengers and steered for the capital. After passing over Chatou, Suresnes and Rueil, a stop of a few minutes was made above the old military fort at Mont Valerien, Paris was entered by the Bois de Boulogne and the Muette, then a huge circle described over the city. The entire trip lasted exactly four hours. Four hundred pounds of ballast remained on reaching home.

LONDON, Sept. 16.—Britain's first military airship, the *Nulli Secundus,* made but a poor impression on its initial appearance in public at Farnborough, and although the weather was favorable did not accomplish its trials without a couple of minor accidents. Its ungainly sausage shape contrasts unfavorably with the graceful lines of the *Patrie,* the *Ville de Paris* or even the older *Le Jaune* of French construction. Structural details are rigorously guarded by the army authorities, but it was naturally impossible to hide its main features from the thousands who gathered on the common to watch its evolutions.

The spherical gas-bag of 60,000 cubic feet capacity is surrounded by a netting and four broad silk bands by means of which three distinct horizontal frameworks are suspended. Power is obtained from an eight-cylinder 50-horsepower motor driving a couple of propellers through long belting running over wire-spoked pulley wheels.

PREPARING FOR AMERICA'S BALLOON RACE.

Arrangements have been made for a large number of the members of the Aero Club of America to leave New York on the Pennsylvania Railroad on October 17 to witness the race for the Gordon Bennett Aeronautical Cup at St. Louis, on October 21. The club headquarters at St. Louis will be the Jefferson Hotel. Special arrangements have been made by the city of St. Louis, the Business Men's League and the Aero Club of St. Louis to contribute to the success of the visit. The Aero Club of America has appointed a reception committee under the chairmanship of Cortlandt Field Bishop.

ONE RECORD LOWERED IN FRENCH STRAIGHTAWAY

PARIS, Sept. 16.—On the white band of perfect highway bordered by olive trees, between Salon and Arles, Bablot has succeeded in lowering a world's record with the Brasier racer which he drove in the Grand Prix. His time for five kilometers, flying start, was 1:56 4-5, beating the Mors record by :3 1-5. The Brasier made the fastest time over the kilometer in :23 4-5, but failed to lower the world's record for this distance. It should be remembered, however, that Hemery, who placed the kilometer on the Salon road at :20 1-5, had the eight-cylinder Darracq which, later, on Florida Beach, attained a prolonged speed which no other vehicle has equaled. Bablot's Brasier was the machine which turned turtle in the Grand Prix when trying to avoid one of the Renault racers on a difficult turn.

Rougier, on the Dietrich which he handled in the Grand Prix and later on the Brescia circuit, in Italy, came second, nearly three minutes behind the Brasier. For this magnificent piece of roadway, probably the fastest in the world, his machine was not geared sufficiently high. Duray, though expected, failed to make an appearance. A Tourand car had trouble at the starting line which prevented it competing. Rochet-Schneider took third place in both the kilometer and five-kilometer races. Summary of times for the big racers is:

	One Kilometer.	Five Kilometers.
Brasier (Bablot)	23 4-5	1:56 4-5
Dietrich (Rougier)	26 1-5	2:04 2-5
Rochet-Schneider (Haeusslin)	32 1-5	2:38 2-5

Average for kilometer, 93.9 miles an hour; for five kilometers, 95.7 miles an hour.

Previous years' touring car races have been run on a selling price basis; this year classification was by cylinder area, thus making difficult any comparison between the present and previous speeds. The fastest time made by any tourist was an average of 69.4 by a Radia on the kilometer and 71.7 miles an hour by a La Buire on the five-kilometer stretch.

ADVERSE DECISION IN TIRE PATENTS CASE

BY his decision, handed down on September 9, Judge Buffington, sitting in the United States Circuit Court for the Western District of Pennsylvania, has brought to a close the first chapter in the long-drawn-out litigation over what are familiarly termed the "clincher tire patents." There are four of these patents, the first of which was granted to Thomas B. Jeffery on July 16, 1891, then of the old firm of Gormully & Jeffery; the second patent was issued on April 28, 1896; the third on January 5, 1892, and the fourth on July 17, 1894, all of them covering means of attaching the shoe or outer cover of a pneumatic tire to a rim without cementing, which was the only method known at the time, this being employed on the so-called Dunlop "rag" tire. In brief, the principal one of these patents, which is the first, covers the familiar "bead" or retaining edge of a clincher shoe and is considered as basic by its owners, while the others cover modifications of the same idea, with the exception of the fourth, relating to the tube. The official title of the action is the G & J Tire Company, Indianapolis, Ind., vs. the Pennsylvania Rubber Company, Jeannette, Pa., and there is a similar action pending against the Michelin Tire Company, in the Southern District of New York, in which no decision has yet been rendered.

By his recently delivered decision in the first-named action, Judge Buffington has left the complainants not a leg to stand on, as he holds in the plainest terms that none of the patents has been infringed. While the G & J Tire Company has been somewhat taken aback at this, it has announced its intention of appealing, and has issued a statement to the effect that, holding that there has been no infringement is equivalent to stating that neither the G & J Tire Company nor any of its licensees have ever manufactured the construction called for by the patents, as the clincher tire manufactured by the defendant is precisely the same as that continuously made by the G & J Company.

The substance of Judge Buffington's decision, which, if sustained, will be far-reaching in its effect, is as follows:

"The rim (A) is provided with hook edges al al, and the figure referred to shows hooks on the rim.—For these provision is made: 'The tire-sheath (C) is provided with correspondingly hooked edges Xl Cll. In the specifications alone the words hook or hooked are found some seventeen times and other than double hooked connection no other method is stated or suggested. If the patentee or his device contemplated the use of any other means or form of engagement he did not disclose it to the public.

"This combination of sheath and tire in the various modifications of this double hook engagement constitutes the claims in question, and the hooks (beads) on both, in some form, are elements of every claim, of which the first, for brevity's sake, will serve to illustrate, viz.: 'In combination with the rim having recesses open toward the axis of the wheel, the tire sheath having its edges reversed and engaged in such recesses, and the elastic expansible core (tube) between the rim and the sheath, substantially as set forth.' Now in the light of this specification we are clear the respondent's tire does not infringe. The respondent uses other means to hold its tire in place, and its method is not disclosed or suggested in the patent in suit. If the disclosure of that patent comprised all the instructions the tire maker of to-day possessed, it is evident the art would not teach the method followed by both respondent and complainant in the manufacture of a modern automobile tire. The patentee showed a hook pure and simple. His hook was such that the hooked edges of the rim 'may be turned inward or outward.' His are genuine hooks, so shaped that by virtue of the form and uses of their recesses, increase of disruptive force, whether the hook or rim is bent outward or inward, lessens the possibility of detachment of the interlocked edges. On the other hand, if the edge of respondent's rim is turned outward no pneumatic connection can be made with a sheath, showing that the connections used in the two methods are essentially different. Respondent's device has no hook open toward the axis, nor one in the direction of a tangent to the inflatable core, while air pressure increases the adhesion of its engaging surfaces, yet its method of doing it is not the process of increasing engagement by the catch ends of the patentee's hooks mutually interlocked in holding recesses. In our judgment it would be a miscarriage of the patent system to so construe this Jeffery patent with its specific form of hook connection as to make it cover respondent's device, which is so different from the hook of the patent that even the complainant who owns that patent uses the same method and not the hooked engagement of the patent.

"The second patent is No. 558,956, issued April 28th, 1896, for a wheel tire, claims 5 and 10 of which are alleged to be infringed. Respondent defends on the ground of non-infringement. We are of the opinion the defense is sustained. The subject matter of this patent, its late date in the art and the close differentiations required to obtain the narrowly limited claims in question indicate the patent was restricted to a comparatively narrow field of improvement."

The claims of this patent provide for "tires having inflatable cores; and it consists in the character and construction of the inclosing sheath and the mode of securing the same to the rim." The sides "of the sheath were made of folded canvas or other web, joined at the folded edges to a tread of rubber of sufficient thickness to stand wear and 'sufficient elastic flexibility to adapt it to yield with the core, and having also tensile elasticity, so that the sheath which comprises it at the middle section is transversely extensible to a slight degree.'

Claims 5 and 10 of this patent both provide for beads extending inwardly so as to be held between the core (tube) and the rim.

"In the respondent's device, however, the sheath ends with its two peripheral side connections with the rim," reads the decision. "No theory or ingenious connection can change that fact, and fact, not theory, is the test of infringement. Accordingly we hold respondent does not infringe.

"The third patent is No. 466,565, issued January 5, 1892, for a wheel tire, claim 7 of which is alleged to be infringed. The defense is non-infringement. It is a device for fastening a tire sheath to a rim by means of hooks, five different modifications of which are shown in the drawings. The respondent, using no hooks to make its connection, does not infringe.

"The fourth patent is No. 523,314, issued July 17th, 1894, for a wheel tire, of which Claims 1, 2 and 3 are alleged to be infringed. The defense is non-infringement. As pertinent to the present case the patent was for a tire provided with an auxiliary wedging device. This consists of a circular ribbed ring, preferably of soft rubber, cemented to the inner periphery of the tube. Now the respondent has neither ring nor rib on its core, but it is alleged to infringe by the use of small butterfly bolts placed at four quadrant points and clamped to the rim by a rigidly fixed bolt and nut with a set-screw and serving to keep the sheath in place on the rim should the core become deflated. The bolt is not affected by either tire inflation or deflation. It is thus clear that its functions and structure are wholly diverse from the ringed rib of complainant's patent, and performs a wholly different function."

RECORD FIGURES IN 24-HOUR RELAY RACE.

MILWAUKEE, Wis., Sept. 21.—New figures were put up in 24-hour relay races by the performance of the Locomobile team of four-cylinder, 40-horsepower cars driven by Drach and Leiser. In two rounds of the clock 1,146 miles were covered, breaking the relay record of 1,135 miles, made by the Ford team at Detroit last June. The Locomobile also made the fastest time for 100 miles, covering that distance in 2:01:09. A Mitchell, driven by Friend and Brown, was second with 914 miles to its credit; a two-cylinder Buick was third with 884 miles. Altogether there were seven starters: Locomobile, Jackson, Buick, Mason, Cadillac, and Wayne. The Loco was first at the end of the initial round and had no difficulty in maintaining its lead. The Jackson had carbureter troubles at an early hour, and, there being no relief car present, had to abandon the contest. The Wayne was in a similar difficulty when engine trouble came its way. During the tenth hour the Mason car went through the fence, its driver, George Dusenberg, suffering a broken collar bone. The Cadillac was withdrawn during the fifteenth hour.

THE NEW IMPERIAL TO BE AT THE PALACE.

One of the new cars to be uncovered at the coming Grand Central Palace show in October will be the Imperial, made by the Imperial Motor Car Company, Williamsport, Pa. Though it began operations a year ago, the company has made haste slowly and this is but its second model, which is designed on larger and more powerful lines than the first. The motor is of the company's own design and is conservatively rated at 35 horsepower. It is fitted with an Eisemann high-tension magneto and double ignition system. The clutch is a metal-to-metal floating ring, with cork inserts, while one of the features of the car on which its designers have lavished a great deal of attention is the double drop frame, giving a "straight line drive," bringing the crankshaft of the motor and the rear axle on practically the same plane when the car is carrying its normal load, thus avoiding a great deal of friction and consequent rapid wear at the universals. A four-speed and reverse gear-set with selective type of operation is fitted, drive being by propeller shaft. An I-beam front axle is employed and a floating rear, the running gear having 36-inch wheels. The lines of the car are pleasing, as will be evident from the photograph illustrating the Imperial roadster, in which Fred P. Brand, vice-president and general manager of the company, is at the wheel, and Superintendent William I. Glasby

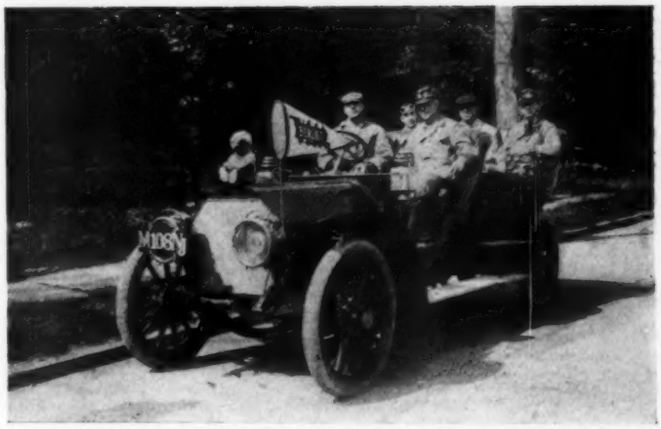
MANAGER FRED BRAND AT THE WHEEL OF THE IMPERIAL.

is seated beside him. The first model has been used continuously for the past year as a demonstrating car over the Pennsylvania mountain roads and their "thank-you-marms" and has not been in the shop a day.

TRANSCONTINENTAL DRAGON IN HARD LUCK.

One misfortune after another has so served to delay the Dragon car in which Charles A. D'Arcy left San Francisco on September 4, in the attempt to make a new transcontinental record, that the prospects of lowering the latter have practically vanished, despite which Mr. D'Arcy and his crew will bring the car through to New York. On Sunday last, September 22, the car passed through North Platte, Neb., which means that by far the worst part of the trip has been left behind. Some of the troubles encountered included getting stuck in a quicksand, being stalled on the desert and suffering the loss of two of the drivers, not to mention wrecking the differential, which, however, was replaced by a spare one carried on the car. The car is being driven by D'Arcy and Theodore Hartenstein and they were accompanied at the start by Benjamin W. Turner and Frank Sexton. The route followed paralleled the tracks of the Central Pacific, Union Pacific and Chicago & Northwestern roads as closely as possible, and this will land the party in Chicago, from where the northern route through Indiana, Ohio and New York State will be followed to New York City.

Six-cylinder automobiles will be made by the Newcastle (Pa.) Automobile Company, a new concern headed by Daniel Morgan, of Pittsburgh. A factory will be erected.



THE BERLIET "SIX" PARTY LEAVING GOTHAM FOR CHICAGO.

A BERLIET "SIX" OFF ON A TOUR.

Although it was Friday the thirteenth—a combination generally held to be particularly ominous for the undertaking of an enterprise—that fact did not deter a party that left New York for Chicago on that day in a new Berliet six-cylinder car, bound for Chicago. H. C. Townsend at the wheel, F. M. Hoblitt and Arthur N. Jervis of the American Locomotive Company, accompanied by Enoch Rector and B. C. Buxton, secretary and treasurer, respectively, of the W. W. Shaw Company, Chicago agents for the Berliet cars, comprised the contingent which thus set superstition at defiance. After a short stay in Chicago, St. Louis, Indianapolis, Cleveland, Buffalo, Pittsburgh, Philadelphia and a few other cities will be visited on the return trip, arriving back in New York about the middle of October.

A RECORD-BREAKING LOAD FOR CLIMBING.

It is one thing to take a car up a mountain on the high gear, but quite another to pile in it and on it all the load that it can possibly be made to carry and then accomplish the same feat, so that the makers of the Pennsylvania are justly proud of the performance of one of their cars in climbing Never-Sink mountain, near Reading, Pa., "loaded to the gunnels," so to speak, as shown by the accompanying photograph. There are many stretches that are extremely stiff, aggravated by sharp turns, and at the time the car was sent up the surface was badly cut up by washouts, which had been refilled with loose, soft earth. The entire distance was covered without the necessity of changing gear. The human load consisted of Philadelphia newspaper men who were there to see and observe as well as to be carried.

LOAD OF SCRIBES THAT THE PENNSYLVANIA CARRIED.

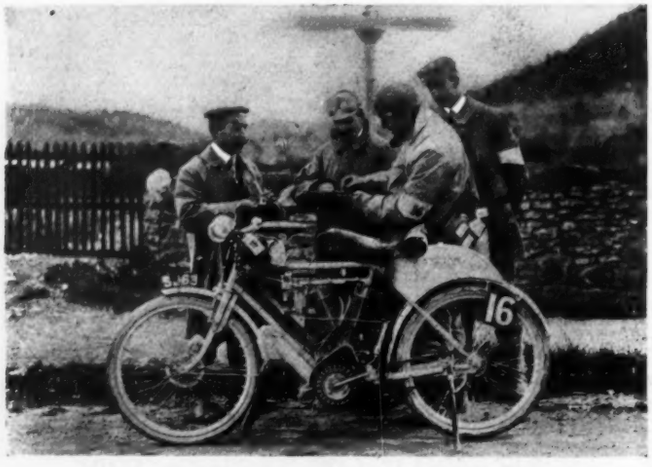
WHAT THE LOZIER CAR ENCOUNTERED IN NEVADA.

IN THE WILDS OF THE GOLD-MINING COUNTRY.

Nothing has proved such a boon to the prospector as the automobile, and, high as the price of gasoline on the Western deserts and in the mountains, miles away from the nearest railroad, it is cheap compared with the expense of muleback travel. C. W. Feigenspan, of Goldfield, Nev., is a prospector who finds his Lozier car particularly valuable in this class of work, to which he has been devoting it steadily in California and Nevada for the past three months. The illustration is from a photograph taken in the Nevada wilds. Mr. Feigenspan shortly expects to drive the car overland to New York, but that will not make one automobile the less in Goldfield, for as a result of his success L. W. Stevenson, president of the Southern Pacific Railroad, recently invested in a 40-horsepower Lozier and will drive it out there.

HASTINGS RETURNS FROM ENGLAND VICTORIOUS.

Theodore K. Hastings, who went abroad early last summer to compete in the 1,000-mile endurance contest held under the auspices of the Autocycle Club of Great Britain, returned last Thursday on the *Oceanic*. The tour was held from August 19 to 24, start and finish being near London, while the route lay for a large part through Wales and its picturesque hills. Hastings was among the first five to finish and received two gold medals, one for his performance in the contest and the other for the neat appearance of the two-cylinder Indian motorcycle which he rode, a prize having been offered for the best appearing and best kept machine. He had a perfect score in the contest, his mileage being 1,002. Of the 39 starters, but 15 finished, and Mr. Hastings expressed himself as so well pleased with his trip that he will repeat it next year.



HASTINGS CHECKING AT ONE OF THE CONTROLS.

KNOX NAME BELONGS TO OLDER CONCERN.

SPRINGFIELD, MASS., Sept. 23.—By an injunction issued in the Superior Court in the case of the Knox Automobile Company vs. the Knox Motor Truck Company, the latter concern is ordered to cease doing business under its present name or any name of which the word "Knox" is a part. The decree was issued in response to a bill of equity filed about two years ago in which it was alleged by the Knox Automobile Company that the Motor Truck Company in using the word "Knox" was leading to a confusion on the part of the public between the two cars and an injury to the plaintiff's business.

In the memorandum accompanying the decree Chief Justice Aiken finds in support of the contention of the plaintiff that confusion between the cars of the two companies must necessarily arise, and also that whatever reputation in the automobile business is attached to the name "Knox" is due largely to the Knox Automobile Company.

The court reviewed the facts brought out in the hearing relative to the association of Harry A. Knox with E. H. Cutler and others in the Knox Automobile Company, incorporated in 1900. In 1901 Mr. Knox conveyed by a bill of sale to his copartners his entire share of the business, giving them full title by a bill of sale to all the company's assets, and in 1904 disposed of all his stock in the company. Immediately afterward the rival concern was started, the defendants in the present case.

C. H. FOSTER AND HIS GABRIEL HORN CHIMES.

MAKING MUSIC FROM THE EXHAUST.

That the automobile, as representative of the most up-to-date method of transportation, has also been responsible for similarly progressive ideas in advertising was never better illustrated than by the recent 6,000-mile trip made by C. H. Foster, of Cleveland, O., to introduce the new 28-chime Gabriel horn, as well as to demonstrate the qualities of the Foster shock absorber. The horn is really a pipe organ on a small scale and, despite the restricted space limitations offered by an automobile, Mr. Foster has devised a regulation keyboard on which almost any composition can be rendered with its full chords, though there are but few more keys than three octaves. The principal cities in Michigan, Wisconsin, Illinois, Indiana, Ohio, Massachusetts, Connecticut and Rhode Island were visited as well as New York City, where performances while en route through Central Park, and on Coney Island's bowery, caused no end of astonishment. Old timers thought the steam calliope had been revived in a far more refined shape and run by gasoline, though it is considerable of a mystery to the average observer as to just what does form the operative power of the compact and inconspicuous instrument. Its appearance on the car is shown by the accompanying illustration, though neither this nor an actual view of the car itself gives an inkling of just how the player performs except upon a view from the left hand side.

BRIEF ITEMS OF NEWS AND TRADE MISCELLANY

Design patent has just been allowed Gray & Davis, Amesbury, Mass., on their new 1908 searchlight. Its design and character was so distinctive that patent was allowed without question.

The Toledo plant of the Pope Motor Car Company has been ordered closed for the purpose of making an inventory. It is expected that about two weeks will suffice to do this and that the plant will resume operations at the end of that time.

The Seitz Manufacturing Company has been voted $10,000 by the city council of Monroe, Mich., and will erect a factory there. The company will make a new commercial vehicle, a special feature of which will be the transmission equipment, the inventor of which is the president of the company.

In the automobile parade in Buffalo during Old Home Week, much attention was attracted by the first carriage built by the Babcock Electric Carriage Company, of that city. The vehicle is still in daily use, and is stated to have traveled more than 70,000 miles. It is used by some of the factory officials, and was driven in the parade by A. H. Kime.

The Glide Club, recently organized at Peoria, Ill., held its initial club run last Sunday. The rendezvous was Lake Senachwine, fifty-two miles from Peoria, where the party was entertained at the Undercliff Hotel. Ten Glide four- and six-cylinder cars are reported to have made the round trip without adjustments of any kind, and all returned on schedule time with perfect scores.

An interesting business trip of about 6,000 miles has just been completed by W. B. Fewell, western representative of the Locomobile Company of America, in the 1908 40-horsepower car. The start was made from Bridgeport, Conn., and the route covered was from New York to Albany, through the State to Buffalo, then to Cleveland, Columbus, Cincinnati, Wheeling, Pittsburg, Bedford Springs, Gettysburg, Harrisburg and Philadelphia. The principal reason for the trip was to show the 1908 product to the agents.

For the purpose of enlightening the purchasing public on the mechanical construction of 1908 models, and the principal changes from 1907 to 1908 cars, the American Motor Car Manufacturers' Association has engaged the services of Charles E. Duryea, who is recognized as one of America's leading mechanical experts, to write comprehensive mechanical data for the Association's members. As Mr. Duryea is one of the pioneer auto builders of the country, and an authority on gas engines, his articles will attract widespread attention.

John Wilkinson, chief mechanical engineer of the H. H. Franklin Mfg. Co., Syracuse, N. Y., and designer of Franklin automobiles, will probably never overcome his tendency to make peculiar and special experiments. A few days ago he tried out a 1908 Franklin by taking off the air fan, placing a blanket over the hood, loading the car with 700 pounds of lead, and making a run of thirty miles to his country residence, just to see if he could overheat the air-cooled car. Although successful in many of his experiments he is reported to have failed in this particular instance.

The new home of the Matheson car, a concrete and steel building of imposing proportions, five stories and basement, located on Broadway, between Forty-ninth and Fiftieth streets, and running from Broadway through to Seventh avenue, will soon be ready for occupancy. It is opposite the present quarters of the Palmer & Singer Mfg. Co., the distributors of the Matheson car. The building is so constructed that three stories additional may be built on whenever necessary. The decorating and finish, both within and without the building, are highly artistic. The upper floor has been arranged as a repair and stock room; three intermediate floors will be used for the garage, and are capable of accommodating 150 cars; a magnificent salesroom, 36x40 feet, with a mezzanine balcony and offices, will be located on the main floor. The building is provided with two large elevators, each having a lifting capacity of 12,000 pounds.

RECENT BUSINESS CHANGES.

The Brooklyn Motor Car Company, 1384-1386 Bedford avenue, Brooklyn, N. Y., has incorporated, and will hereafter be known as the R. E. P. Sporting Goods Company. The company's line will not only be comprised of auto supplies, but will include everything pertaining to the outfitting of a sportsman.

The Walter Automobile Company has placed E. S. Lea in charge of its agency in Philadelphia. Mr. Lea was formerly connected with the company's factory at Trenton in a prominent capacity. In addition to handling the Walter and Darracq cars, the Philadelphia house will also carry a line of Belgian motorcycles.

A number of changes in the location of auto dealers in Worcester, Mass., are being made. The Robinson garage on Church place, on the west side, is to be taken and managed by the Worcester Motor Car Company, a new entrant in the field. George H. Phelps, agent for the Corbin car, is to have a garage at Newton square. The Pond Auto Station, which has an uptown office at 186 Main street, and its garage on Assonet street, will have a new garage on Allen court, just off Main street, at Franklin square.

NEW AGENCIES ESTABLISHED.

The New York agency for Continental motors, manufactured by the Continental Motor Company, Muskegon, Mich., has been placed with Thomas J. Wetzel, 29 West Forty-second street.

Sheldon W. Case, agent for Holsman automobiles in Newark, N. J., and vicinity, has opened a show room at 202 Halsey street, that city. Last year Mr. Case conducted the Holsman sales from his Montclair office, which will be retained, making two salesrooms for the car in the territory.

The New York agency for the Atlas two-cylinder runabout, made by the Knox Motor Truck Company, Springfield, Mass., has been placed with C. H. Martin, formerly of Martin & Company, consulting engineers on commercial vehicles, who has opened headquarters at 31 West Forty-second street.

The Lozier Motor Company makes the following announcement of new agencies placed for 1908: For Jersey City, with George Blakesley, president of the Crescent Automobile Company, who is one of the pioneer dealers of Hudson County, N. J.; for Cincinnati, the Sid Black Automobile Company, who last year handled the Lozier and Franklin and other lines, and will this year confine its attention to the Lozier and Franklin exclusively; for Columbus, O., and vicinity, the Orlando-Kessler Company.

President Horace DeLisser, of the Ajax-Grieb Rubber Company, who is now making an extensive tour of the country, has opened the following Ajax tire branch houses: In Chicago, at 1418 Michigan avenue, in charge of G. J. Durwell, formerly branch manager for the International Tire Company; in Detroit, in charge of Charles Hatch, formerly branch manager in that city for the Hartford Rubber Works, and prior to that time with the Diamond Chain Company. Mr. DeLisser is now en route to California, where he will establish other branches.

PERSONAL TRADE MENTION.

F. C. Chandler, manager of the foreign department and the western agencies of the Lozier Motor Company, is making a tour of the western cities. W. S. M. Mead is visiting the eastern Lozier agencies.

Leo Melanowski, formerly identified with the Dragon car, and, until recently, chief engineer of the Aerocar Company, Detroit, Mich., leaves to-day on *La Lorraine*, accompanied by his wife, for a four months' visit to the automobile factories of France, England, Germany and Italy.

ERNEST KELLY'S DEATH.

By the unfortunate death of Ernest Kelly recently at Sacramento, Cal., the Dragon Automobile Company has lost a valuable helper, and a large circle of friends mourn a genial spirit. Ernest Kelly, who was one of the traveling sales managers of the Dragon concern, had gone westward to straighten out some business for his company. During his stay in Sacramento he undertook to drive Percy Walker's Thomas Flyer in a match with Fernando Nelson's car of the same make, handled by Bert Dingley. Owing, it is thought, to the dusty nature of the track, Kelly drove into the fence when traveling almost sixty miles an hour. The machine broke through the barricades, struck a ditch, then threw the driver some fifty feet. Although seriously injured, Kelly regained consciousness at the hospital sufficiently to talk cheerfully to the doctors, but later lapsed into unconsciousness and passed away.

Last winter Ernest Kelly gained prominence by piloting a Thomas car in one of the longest non-stop runs held in this country. One of his last tasks with the Dragon people was the starting of the transcontinental Dragon which is now crossing the continent.

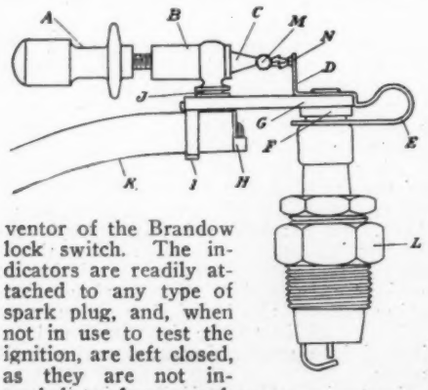
INFORMATION FOR AUTO USERS.

Town and Country Driving Boots.—Handling the wheel of a car in winter weather, or sitting in the tonneau, is pretty cold work, particularly for tender extremities, and to avert this unpleasantness Guiterman Brothers, Saint Paul,

GUITERMAN'S DRIVING BOOTS.

Minn., are marketing a special type of fur-lined boots for both men and women. They are designed to pass over the ordinary shoe readily and extend considerably above its top, thus affording thorough protection to both the ankles as well as the feet. The type illustrated is 17 inches high and is known as the Czar boot; it is made of black leather, as shown in the illustration, with a heavy oak sole and heel. Other types, such as the "Romeo" and "Dixie" are made 9 inches high, the first named in tan with light, flexible sole, and the second, in two types of black with flexible or stiff, heavy oak sole and heel. For women, the "Juliet" style comes in two heights, 11 and 14 inches, in tan or black leather, both having light, flexible soles. They are ordered by giving the regular shoe sizes of the intending wearer.

Brandow Spark Indicator.—This is a device designed to aid in the location or discovery of ignition faults, and is the invention of Dr. Frank W. Brandow, of Pittsfield, Mass., formerly president of the Berkshire Automobile Club, and in-



BRANDOW INDICATOR APPLIED.

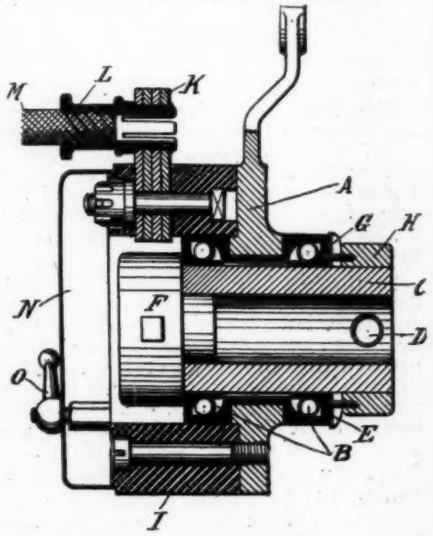
ventor of the Brandow lock switch. The indicators are readily attached to any type of spark plug, and, when not in use to test the ignition, are left closed, as they are not intended to form spark gaps. They are permanently attached to the engine, one at each plug, and are accordingly always ready for use. To adjust vibrators, or test a unit of the coil, the indicators are opened about 1-4 inch, while, to time the engine, they are opened but 1-8 inch. Weak batteries are shown by the indicators by an occasional miss, while faulty carbureter adjustment is revealed by irregular firing in spite of the spark passing constantly, the indicators being open about 1-8 inch; for magneto testing they are opened 1-4 inch. The device is being manufactured and marketed by the Brandow Combination Lock Switch Company, 86 North street, Pittsfield, Mass.

Vim Spark Plug.—This plug, which is just being put on the market by the K-W Ignition Company, Cleveland, O., embodies many radically different ideas in plug construction. The chief of these is the elimination of all packing and the substitution of ground taper joints which are absolutely gas tight and are maintained so in spite of the expansion and contraction of the different parts by being subjected to the tension of a helical steel spring. To insulate it, the central stem of the plug is surrounded by a heavy wrapped mica tube, which fits into the center of an unglazed porcelain tube, thus making it a combination mica and porcelain plug, having all the advantages of the high insulating properties of both these materials without their drawbacks. Surrounding the large taper joint, near the hexagon nut, is an annular pocket extending for a considerable distance along the porcelain core. The old or burnt mixture is compressed back into this space, allowing an ample volume of new mixture to surround the spark gap part of the plug at the base of the brass nozzle. The latter confines the mixture within the plug, so that when the spark occurs at the gap, it explodes the new mixture confined in the plug and shoots a blast of flame out through the nozzle into the cylinder. The Vim plug is claimed by its makers to be absolutely sootproof as the result of this construction.

NEW VIM PLUG.

Mexican Graphite Auto Lubricant.—This lubricant is intended for general automobile use, and is said to be absolutely uniform, gritless, dripless and free from precipitation, and it can be employed wherever oil is used, such as in the gear or differential case, wheel hubs and similar situations, with great economy, owing to the absence of dripping. This gritless graphite powder is manufactured by the United States Graphite Company, Saginaw, Mich., from graphite of their own mines in Mexico, and its specific advantages lie in the fact that it is reduced to an impalpable powder by an elaborate system, and is then combined with the proper lubricating oils and solidified to the right consistency for automobile use. In this state it has a great affinity for oil, and in consequence possesses great power of adhering to bearing surfaces, which makes it very valuable as a lubricant. The compound is about the consistency of non-fluid oil and carries exactly the proper proportion of the powdered graphite, a result that, the makers state, is difficult, if not impossible, to obtain by hand mixing.

Herz Ball-Bearing Timer.—For 1908, Herz & Company, 203-205 Lafayette street, New York, are bringing out a timer to be known as the 1908 Excellent Standard. This is an improved design, mounted on ball-bearings throughout, and is self-adjusting. All parts are in-



SECTION VIEW HERZ TIMER.

terchangeable, of the best materials and the most accurate workmanship. In the illustration, A is the steel base and advance lever with hardened cups for the ball bearings B, while C shows the rotating center sleeve with the contact plunger F, this sleeve being fastened to the camshaft or timer shaft by the set screw D. H is a collar fastened on the sleeve by means of two set screws, holding a specially designed screw G, which presses against the lower cone E, thus making the device self-adjusting, by taking up both lateral and endwise movement. The cone flanges are fitted close to the bearings to make them dustproof. I is the hard rubber insulation containing the contact K of laminated tool steel plates with a brass sleeve, into which the terminal L is pressed. The latter is reversible and can be attached either from the top or bottom. The wire M is attached to the terminal L by laying it over the outside and screwing in through the threaded hole.

An Improved Carriage Lock.—A security locking handle which should be well received by all automobilists interested in the minor perfections and luxuries of their cars has just been put on the market and is handled in New York City by the Auto Supply Company, 1733 to 1737 Broadway, New York City. The lock is combined with the handle, obviating the necessity of a separate lock with keyhole on the door frame and cut away on the pillar. Each pair of handles includes two keys, which fit either handle. The locking device in each pair differs so that none of the keys will fit any but the handles for which they are made. This safety locking handle can be used with any ordinary lever lock and, being interchangeable, an ordinary handle may be replaced by it in a few moments.